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**Metropolitan Life**
AND AFFILIATED COMPANIES

# SB
# STATISTICAL BULLETIN

Vol 67 No 4 Oct-Dec 1986

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# From The Editor's Desk

Have you ever heard of Chlamydia? It is but one of several sexually transmitted diseases (STDs) reviewed in this issue of *SB*. Often people are reluctant to discuss openly these conditions derived from sexual behavior, but their severity and high complication rates virtually demand better public education. In a companion editorial, Dr. Willard Cates, Jr., Director, Division of STDs, Centers for Disease Control, tells why these diseases have become so prominent, and offers some specific steps for public health action.

## The State With Best Longevity

Move to Hawaii? Want another good reason to bask in its warm climate and enjoy its beautiful beaches? Consider this: it is the state with the best longevity record for its residents. So not only do Hawaiians have a wonderful state to enjoy, they can do it longer. Have the name of a reliable household goods mover?

## Research on "Nuclear Winter"

If you've followed the scientific evolution of the research on the risk of nuclear winter, as summarized in "Capsule Briefs" from time to time, you won't want to miss this issue's *precis* of a recent federally sponsored study that confirms its likelihood. It is a condition for which there is no remedy except prevention.

## Change in Age of Mothers

If the mothers you see pushing baby carriages seem older these days, you are right. They are. In this issue of *SB*, the changing profile of births in the United States points out the dramatic change in the ages at which women bear children. Behind the statistical data are a startling set of implications for family formation, family life, couple interactions, employer-employee agreements, economics, and many more subjects that affect Americans every day. In which ways have these changes touched your life?

## Rise in Pancreatic Cancer

Cancer of the pancreas is one of the most lethal diseases known to medical science. Its victims live an average of 6–7 weeks after diagnosis. Of all the cancers, none other has such a typically rapid course. Worse, it is claiming more lives each year, with the 1986 estimate at 25,000. Its death rates, as *SB* shows you in this issue, tend to be highest in Washington, D.C. and lowest in Utah. Why? We don't know. Unlike most other cancers, pancreatic cancer has not yielded any consistent clues to its cause.

On that somewhat disquieting note, but in the spirit of learning, I wish you good reading.

Charles B. Arnold

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*The Statistical Bulletin will publish comment and criticism from readers about its contents. Alternate interpretations of data analyses or different points of view about subjects are particularly welcome. Use address at end of publisher's statement, opposite page.*

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# Letters to the Editor

## On Golden Anniversaries

As an avid nitpicker, please let me pick a nit with your article "Increased Chances of a Golden Wedding Anniversary" (Vol. 67, April–June 1986).

You say "golden wedding anniversaries are more likely to be celebrated when the bride is younger than the groom." The reverse, when the groom is younger, would seem a far more appropriate statement.

In all likelihood, the underlying sex-distinct mortality tables used by you only used age as an independent variable for mortality rates and contained mortality rates at all ages for males higher than for females at corresponding ages (in the age ranges of interest).

Clearly, choosing a groom a specific number of years younger (or older) than another groom—e.g., a groom of equal age to the bride—has a greater impact on the probability of celebrating a golden wedding anniversary than substituting a bride who is younger (or older) by the same number of years than the originally chosen bride.

Your Table 2 provides supporting examples. For your text illustration, you chose a 25-year old groom marrying a bride two years his junior; their golden wedding anniversary chances are given as 350 in 1,000. But this also tells us that the chances for the groom's twin sister who gets married the same day to the bride's twin brother has golden anniversary chances of 368 in 1,000 (368 > 350.)

It's the arrangement of the tables that's at fault, not symmetric with respect to sex. Male age is kept fixed, with female age varied relative to the male's.

Your Bulletin is great!

**Gerald W. Frey, F.S.A., M.A.A.A.**
Flushing, New York

## Editor's Reply

*Mr. Frey's point is well taken. Golden wedding anniversaries are not necessarily more likely in instances where the bride is younger than the groom. The data analysis presented in the Apr–Jun issue of SB was based on the hypothesis that men typically marry women younger than themselves. There are many cases where men marry older women, and their chances of joint survival for a specified period can be greater—depending on the age of the bride and groom and the age differences between them. Statistical data presented from a fixed viewpoint are subject to differing conclusions if other interpretations are not first investigated. SB offers our thanks to Mr. Frey for reminding us to be ever wary.*

# Sexually Transmitted Diseases in the United States

Sexually transmitted diseases (STDs) and their sequelae have increased dramatically over the past two decades in the United States. These diseases include not only the historic venereal diseases (syphilis, gonorrhea, chancroid, lymphogranuloma venereum, and granuloma inguinale) but also approximately 20 other diseases, syndromes and/or complications. Most notable among these new and nonreportable STDs are genital herpes, nongonococcal urethritis, penicillin-resistant gonorrhea, acquired immunodeficiency syndrome (AIDS) and a diverse group of genital and neonatal infections caused by Chlamydia trachomatis. Estimates of the magnitude of the STD problem are based primarily on data from health departments or STD clinics, surveillance activities and special national random surveys of health care encounters.

Understating of both the reportable as well as the newer nonreportable STDs is widespread. Some reasons for underreporting are the continuing stigma associated with a diagnosis of an STD among various populations; the exclusion of many private practitioners from surveys; differing clinical criteria used in diagnosing STDs; self-medicating by some STD sufferers; and the absence of clinical symptoms in certain of these diseases. But there is consensus that the problems and long-term consequences of STDs are accelerating, creating an urgent need for action during the 1980s. In 1979 the Surgeon General of the United States included STDs in the 15 priority areas for health action by 1990. This report will present the most recently published data from the Centers for Disease Control (CDC), National Center for Health Statistics (NCHS) and the New York City and San Francisco Health Departments on some of the most prevalent and/or publicized STDs.

[illegible]

## Gonorrhea

Despite surveillance activities and the availability of generally effective treatment, gonorrhea remains the most frequently reported communicable disease in the United States. In 1984 a total of 878,556 cases of gonorrhea were reported for both sexes, with the CDC estimating that the true number is closer to 1.8 million cases. Rates climbed through 1975 and then began to decline each year thereafter to the 1984 rate of 374.7 per 100,000 for both sexes (Table 1).

[illegible]

Males predominate in rates of gonorrhea, and in 1984 their rate of 447.4 was 47 percent higher than the 305.9 rate for women. However, the sex ratio of this disease has been changing over the years. In 1970, 72 percent of all cases were reported among men, whereas in 1984 the proportion dropped to 59 percent. During this time period, the rates per 100,000 increased only slightly among men ([illegible] in 1970 to 447.4 in 1984). In contrast, a staggering [illegible] percent increase in rates occurred for women, from [illegible] in 1970 to [illegible] in 1984.

Historically, gonorrhea rates have been higher among females than males through age 14. In each age group, thereafter, rates for men are higher, with a 5.5 to 1 male to female ratio evidenced in the 1984 rates at ages 45+. Reported gonorrhea rates continue to be the highest among men aged 20-24; since 1982, rates began peaking among women aged 15-19.

While the rates of gonorrhea decreased between 1975 and 1984, reports of a penicillin-resistant strain (penicillinase-producing neisseria gonorrhea) have been appearing. The first case of this STD was reported in March 1976, but by 1984 the cases had increased more than 40 times. Reported cases peaked in 1982 at 4,464 for both sexes after more than doubling each year between 1979 and 1981. In 1984 a total of 4,122 cases were reported in the United States. Serious problems with penicillin resistance have erupted in South Florida and New York City.

## Syphilis

Syphilis continues to rank third among reportable communicable diseases, surpassed only by chickenpox and gonorrhea. In 1984, 69,888 new cases of syphilis (all stages) were reported for both sexes. The CDC estimates that approximately 20,000 persons have undiagnosed and/or untreated syphilis in this country, and thus, the 1981 total is closer to 90,000 cases.

## Table 1—Rates and Total Number of Reported Cases of Gonorrhea By Age and Sex, United States, 1970–84

Morbidity Rate per 100,000

| Age Group | 1970 | | | 1975 | | | 1980 | | | 1984 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| 0–9 | 6.0 | 3.2 | 8.9 | 8.2 | 4.5 | 12.1 | 6.7 | 4.0 | 9.5 | 6.3 | 3.6 | 9.3 |
| 10–14 | 25.4 | 19.4 | 31.6 | 46.7 | 20.9 | 73.6 | 48.7 | 23.6 | 74.8 | 44.6 | 22.5 | 67.8 |
| 15–19 | 780.9 | 958.7 | 604.3 | 1275.1 | 1103.9 | 1446.4 | 1187.3 | 953.4 | 1424.6 | 1133.7 | 895.8 | 1375.9 |
| 20–24 | 1540.4 | 2512.4 | 740.5 | 2096.0 | 2612.2 | 1610.8 | 1824.0 | 2204.1 | 1460.7 | 1594.8 | 1860.7 | 1340.4 |
| 25–29 | 824.8 | 1372.1 | 315.9 | 1139.9 | 1638.8 | 664.1 | 1048.7 | 1478.0 | 633.9 | 859.0 | 1176.4 | 552.4 |
| 30–34 | 410.1 | 700.6 | 140.5 | 522.4 | 795.0 | 264.6 | 483.8 | 734.7 | 243.5 | 423.3 | 638.3 | 216.2 |
| 35–39 | 212.0 | 370.0 | 66.7 | 263.8 | 423.8 | 115.5 | 294.1 | 474.9 | 122.8 | 200.2 | 316.8 | 89.3 |
| 40–44 | 105.4 | 187.1 | 29.2 | 144.5 | 234.3 | 59.4 | 155.5 | 255.5 | 60.7 | 120.3 | 194.5 | 49.7 |
| 45+ | 21.1 | 38.5 | 6.4 | 26.4 | 45.6 | 10.5 | 27.1 | 48.7 | 9.5 | 22.9 | 41.8 | 7.6 |
| Total | 297.2 | 449.2 | 156.0 | 467.7 | 574.9 | 367.6 | 445.0 | 544.2 | 352.4 | 374.7 | 449.4 | 305.0 |
| Total Reported Cases | 600,072 | 436,812 | 163,260 | 999,937 | 593,754 | 406,183 | 1,004,029 | 592,809 | 411,220 | 878,556 | 508,725 | 369,831 |

Source: Sexually Transmitted Disease Statistics, Issue No. 134,
U.S. Department of Health and Human Services, 1984

David Johnson

Syphilis continues to rank third among reportable communicable diseases, surpassed only by chickenpox and gonorrhea

Primary and secondary syphilis (the infectious stages) accounted for 41 percent of all cases (12.2 per 100,000 population). Early latent syphilis accounted for 33 percent of all reported cases with a rate of 9.9 per 100,000, followed by late and late latent syphilis at 26 percent of the total (7.6 per 100,000), with congenital syphilis accounting for one-half of one percent

## Table 2—Rates and Total Number of Reported Cases of Primary and Secondary Syphilis by Age and Sex, United States, 1970–84

Morbidity Rate per 100,000

| Age Group | 1970 |  |  | 1975 |  |  | 1980 |  |  | 1984 |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| 0–9 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 |
| 10–14 | 1.1 | 5 | 1.6 | 1.1 | 7 | 1.5 | 9 | 5 | 1.3 | 9 | 5 | 1.3 |
| 15–19 | 19.3 | 18.8 | 19.8 | 17.8 | 18.0 | 17.5 | 17.2 | 19.2 | 15.1 | 17.3 | 17.5 | 17.2 |
| 20–24 | 40.0 | 55.6 | 27.1 | 39.2 | 55.9 | 23.5 | 36.7 | 55.1 | 19.0 | 39.1 | 53.7 | 25.1 |
| 25–29 | 33.2 | 48.0 | 19.4 | 33.2 | 52.6 | 14.7 | 32.8 | 54.0 | 12.4 | 33.1 | 50.2 | 16.5 |
| 30–34 | 26.1 | 40.5 | 12.8 | 25.7 | 42.2 | 10.0 | 23.2 | 39.5 | 7.6 | 23.0 | 37.0 | 9.5 |
| 35–39 | 17.0 | 27.1 | 7.7 | 18.2 | 30.8 | 6.5 | 16.3 | 27.8 | 5.3 | 15.1 | 24.9 | 5.7 |
| 40–44 | 10.2 | 16.7 | 4.1 | 12.3 | 20.8 | 4.2 | 12.1 | 21.3 | 3.3 | 10.7 | 18.2 | 3.5 |
| 45 + | 2.3 | 4.0 | 9 | 2.5 | 4.6 | 7 | 2.4 | 4.6 | 6 | 2.5 | 4.7 | 7 |
| Total | 10.9 | 14.9 | 7.1 | 12.0 | 17.8 | 6.5 | 12.1 | 19.1 | 5.5 | 12.2 | 18.2 | 6.6 |
| Total Reported Cases | 21,982 | 14,531 | 7,451 | 25,561 | 18,429 | 7,132 | 27,204 | 20,767 | 6,437 | 28,607 | 20,576 | 8,031 |

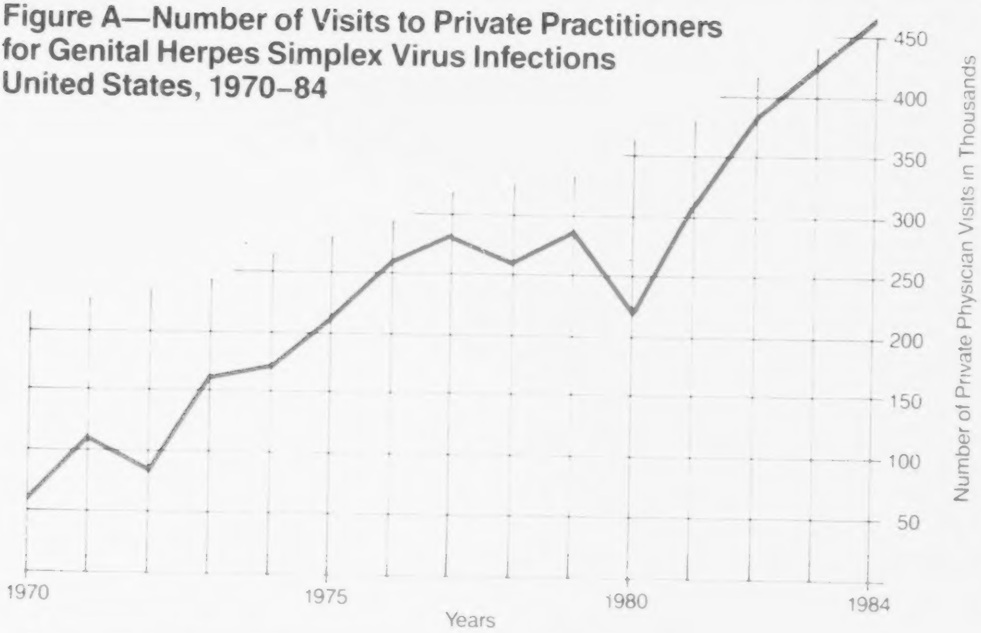
Source: Sexually Transmitted Disease Statistics, Issue No. 134
U.S. Department of Health and Human Services, 1984

Primary and secondary syphilis rates and case numbers historically have been at least two to three times higher among men than women in all age groups after 19 (Table 2). In 1983 women experienced an increase in both the number of cases and the rate of this disease, while men showed decreases. In 1984 decreases were evident for both sexes. Between 1970 and 1984, however, there was a 22 percent increase in the rate of primary and secondary syphilis among men and a 7 percent decrease in the rate among women. The highest reported incidence of this disease continues to occur at ages 20-24 for both sexes—53.7 per 100,000 among men and 25.1 per 100,000 among women in 1984.

The highest reported incidence of syphilis occurs at ages 20-24 for both sexes

Reported cases of congenital syphilis have increased 16 percent since 1980 after roughly a decade of decline. The number of such cases remain relatively low, however, 322 in 1984. The rate of congenital syphilis appears to have stabilized at 0.1 per 100,000. Unlike other STDs that affected newborns, "congenital syphilis can either

**Figure A—Number of Visits to Private Practitioners for Genital Herpes Simplex Virus Infections United States, 1970–84**



Source of basic data: Centers for Disease Control, Division of Sexually Transmitted Diseases

be prevented or treated *in utero*, thus every case should be viewed as a public health failure.

## Herpes

Physician visits for genital herpes infections have increased more than sevenfold in the United States since 1970 (Figure A). In 1970 approximately 50,000 visits were made to private practitioners because of a genital herpes simplex infection, and in 1984 the number had risen to over 450,000. Women ages 20-24 and men 25-29 account for most of these doctor visits. Statisticians at the CDC estimate that between 200,000 and 500,000 new cases of this currently incurable chronic disease are seen each year in this country. They further estimate that the overall prevalence of genital herpes infection (including assymptomatic cases) is close to 30 million. Most genital infections (85 percent) are due to herpes simplex virus (HSV) type 2, which is also responsible for 98 percent of the recurrent genital herpes. A new medication, acyclovir, is proving effec-

Physician visits for genital herpes have increased more than sevenfold since 1970.

tive in reducing some of the outbreaks of genital herpes, but to date a method does not exist to prevent these infections.

Not only are there major complications and increased morbidity among adults with this disease, there is also a 60-70 percent fatality rate among infants born to mothers with genital herpes. As well, neurologic and ocular sequelae are evident in 50 percent of the neonate survivors of mothers with primary genital herpes.

## Chlamydia

Chlamydial infections and the many diseases they cause are not reportable, yet Chlamydia trachomatis infections are a major public health problem today that appears to be increasing. An estimated annual prevalence of 3 to 4 million cases of Chlamydia in the United States makes it the most frequently occurring bacterial cause of STDs. Chlamydia trachomatis causes about 50 percent of certain male uro-genital infections (nongonococcal urethritis and epididymitis). It is the major etiologic agent in the development of acute salpingitis (pelvic inflammatory disease—PID) in women, and causes conjunctivitis and respiratory tract infections in neonates.

An estimated annual prevalence of 3 to 4 million cases of Chlamydia infections makes it the most frequently occurring bacterial cause of STDs

Results of special studies indicate that the prevalence rate of Chlamydia is highest at ages 15-24 for both sexes and that the rates decline with age. The sensitivities of current diagnostic techniques for chlamydial infections are highly variable. Thus, reports of infections based on such determinations understate the problem. The complications of these infections are many, long lasting and may result in sterility in both sexes.

Pelvic inflammatory disease (PID) is one of the most common serious complications of STDs among women and is often followed by devastating gynecologic sequelae. An estimated 1 million cases of PID occur annually among women aged 15-44 in the United States. Hospitalization is required for about 25 percent of women with PID. Infertility due to damaged falllopian tubes, recurrent infections and ectopic pregnancies are markedly increased among women with a history of sexually transmitted PID. Data from the National Ambulatory Medical Care Survey have been used to estimate rates of PID in population groups. Nonwhite rates are more than twice as high as those for white women (around 5,000 and 2,300 per 100,000, respectively in 1981). The annual rate of PID is three times higher among women aged 15-19 than those aged 25-29. Acute PID is most frequently reported among women aged 20-24, while some of the consequences of sexually transmitted PID occur later in life, between ages 25-34.

## Acquired Immunodeficiency Syndrome

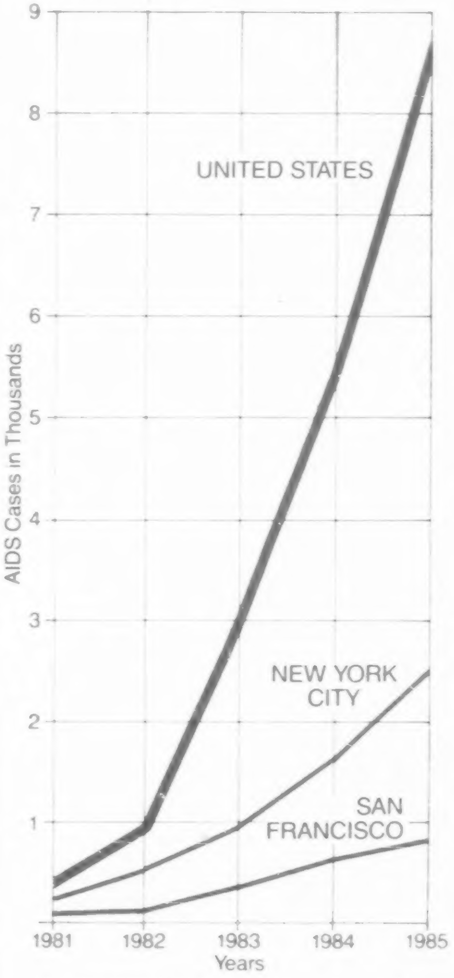
Acquired immunodeficiency syndrome (AIDS) was first recognized as a problem in the United States in 1981. Since then more than 18,000 cases of AIDS have been reported, and AIDS is now the newest and

More than 18,000 cases of AIDS have been reported in the United States most lethal STD. The U.S. Public Health Service projects that by 1990 AIDS will claim more lives than traffic accidents. Although the causative virus can be transmitted through blood or blood products, AIDS has become established primarily as a sexually transmitted disease. Infection results in an inability to fight certain diseases (pneumonias, particularly pneumocystis carinii pneumonia) and an increased susceptibility to Kaposi's sarcoma (a rare form of cancer). AIDS' high mortality rate in a relatively young population has contributed to its rapid ascendency in the public eye, virtually overshadowing other STDs in recent years. The two highest risk groups are homosexual or bisexual men and intravenous drug users.

> Since 1981 there has been a steady increase in reported cases of AIDS in this country.

A steady and steep increase in AIDS cases has been reported each year since 1981 across this country (Figure B). By the end of 1985 more than 18,000 cases had been reported. More than half of the cases reported in 1981 were in New York City. New York City's share of total cases has been decreasing each year, accounting for a little more than a fourth of all cases in 1985. Cases of AIDS in San Francisco continue to account for slightly less than 10 percent of all cases. Annual increases in AIDS cases appear to be slowing down. Between 1981 and 1982, there was a 344 percent increase in total cases, and between 1984 and 1985, the increase was around 63 percent. To date, there are neither effective therapeutic nor preventive measures for AIDS, despite intense research efforts. Even more pessi-

**Figure B—Annual Incidence of AIDS—United States New York City and San Francisco, 1981–85**



Source of basic data: Centers for Disease Control, New York City Department of Health, San Francisco Department of Health.

mistically, researchers indicate no major breakthroughs on either front in the near future, although periodic reports to the contrary appear in the media.

## A Societal Problem

The emergence of STDs as a major public health problem in the 1980s, particularly among women, has clear antecedents in the sexual revolution of the '60s and '70s. Increasing sexual activity among adolescents is also contributing to the rise in STD morbidity. The long-term consequences of such behavior should become evident as this group begins trying to have families. As the baby boom generation ages and more information about the incidence and sequelae of STDs is disseminated, perhaps sexual behaviors will change, with eventual decreases in the incidence of STDs.

The impact of STDs present an enormous challenge to medical, educational and social agencies. Because these diseases relate to sexual behavior, they are a major threat to reproductive health. The list of medical problems associated with STDs seems like a veritable Pandora's Box: increases in infertility for both sexes; ectoptic pregnancies; neonatal deaths and infections; premature mortality among certain segments of the population; and risk of certain forms of cancer.

It is essential that we accept the inevitability of new public and personal responsibilities for STDs. A massive health education campaign is needed to expose the serious health risks associated with the sexual revolution of our era. In addition to increased public and medical awareness of the problem, there must be better control programs based upon improved surveillance and screening activities. To better understand, diagnose and manage these diseases, more biomedical and epidemiologic research are required.

## References

Thompson, S.E., Washington, A.E.: Epidemiology of sexually transmitted *Chlamydia trachomatis* infections. *Epidemiologic Reviews* 5:96-123, 1983.

Perine, P.L., Handsfield, H.H., Holmes, K.K., Blount, J.H.: Epidemiology of the sexually transmitted diseases. *Ann. Rev. Public Health* 6:85-106, 1985.

Parra, W.C., Cates, W. Jr.: Progress toward the 1990 objectives for sexually transmitted diseases: Good news and bad. *Public Health Reports* 100(3):261-269, 1985.

U.S. Department of Health and Human Services: *Promoting Health/Preventing Disease: Objectives for the Nation.* Washington, D.C.: U.S. Gov't. Printing Office, 1980.

U.S. Department of Health and Human Services: *Sexually Transmitted Disease Statistics, 1984 (Issue No. 134).* Atlanta, Georgia: Centers for Disease Control, 1985.

Blount, J.: Statistician, Division of Sexually Transmitted Diseases, Centers for Disease Control, personal communication.

Mascola, L., Pelosi, R., Blount, J.H., Binkin, N.J., Alexander, C.E., Cates, W. Jr.: Congenital syphilis: Why is it still occurring? *JAMA* 252(13):1719-1722, 1984.

Becker, T.M., Stone, K.M., Cates, W. Jr.: Epidemiology of genital herpes infections in the United States: The current situation. *J. Reprod. Med.* 31(5S):359-364, 1986.

Kalter, D.C., Rosen, T.: Sexually transmitted diseases. *Emergency Med. Clin. of N.A.* 3(4):693-716, 1985.

Corey, L., Holmes, K.K.: Genital herpes simplex virus infections: Current concepts in diagnosis, therapy and prevention. *Ann. Intern. Med.* 98(6):973-983, 1983.

Judson, F.N.: Assessing the number of genital chlamydial infections in the United States. *J. of Reprod. Med.* 30(3):269-272, 1985.

Washington, A.E., Cates, W. Jr., Zaidi, A.A.: Hospitalizations for pelvic inflammatory disease: Epidemiology and trends in the United States, 1975 to 1981. *JAMA* 251(19):2529-2533, 1984.

Washington, A.E., Arno, P.S., Brooks, M.A.: The economic cost of pelvic inflammatory disease. *JAMA* 255(13):1735-1738, 1986.

# Guest Editorial
## Sexually Transmitted Diseases: Why Such Prominence?

The term "venereal diseases" has evolved to that of "sexually transmitted diseases" (STD), in keeping with the shift of a field from one primarily emphasizing gonorrhea and syphilis to one concerned with numerous conditions spread through intimate human behavior. Although we continue to use gonorrhea and syphilis as indices of STD trends, the expanded list now encompasses many STDs, among them *Chlamydia trachomatis* infections, genital herpes, human papillomavirus (HPV) infections, genital mycoplasmas, cytomegalovirus (CMV), hepatitis, vaginitis, enteric infections, ectoparasitic diseases, and, most recently, infections due to the human immunodeficiency virus (HIV). Many of these infections have been around for ages, but have achieved recent prominence as STDs for several reasons:

1. Improved laboratory diagnostic techniques facilitated epidemic investigations of the extent, method of transmission and consequences of STDs.
2. The population-at-risk for STDs rose. The number of young adults in Western countries increased faster than the total population during the 1960s and '70s as this baby-boom generation aged. Moreover, this cohort was more sexually active than its predecessors.
3. Age-adjusted incidences of the newer STDs increased. Chlamydia has replaced gonorrhea as our most frequent sexually transmitted bacterial pathogen. Sexually transmitted viruses are also increasing; estimates of symptomatic genital herpes and genital HPV range from ½- to 1-million new cases annually.
4. We experienced a higher proportion of infections with multiple modes of sexual transmission, particularly the hepatitis A and B viruses, CMV, group B streptococcus and some enteric pathogens.
5. STDs' impact on maternal and child health is now apparent. Pelvic infections alone cost an estimated $2 billion plus annually. Reproductive health authorities realize their programs must include activities to prevent and control STDs.
6. STDs have been associated with incurable and fatal conditions, including chronic recurrent genital herpes, HPV-associated genital cancers, and acquired immunodeficiency syndrome (AIDS).

Even our older STDs are returning. From our 1986 perspective, trouble is brewing on two fronts with gonorrhea. First, reported rates of gonorrhea increased in 1985, reversing a decadelong trend. Second, the number and variety of antibiotic-resistant strains increased markedly and are playing havoc with standard diagnostic and treatment protocols. This resurgence is probably the result of a combination of factors: diversion of gonorrhea control resources into other priority STD efforts, primarily AIDS and Chlamydia; increasing percentage of gonorrhea resistant to standard therapy; and in several areas, variations in reporting, producing artifactual increases.

In the face of newer, and the resurgence of older STDs, public concern with these infections has increased markedly. A recent magazine poll found that a selected sample of Americans had greater concern about STDs than about our national defense. I can ony hope that this concern leads to more effective primary prevention behaviors by those at greatest risk. I believe that nonjudgmental educational messages, backed by legal protection of civil liberties and confidentiality, are important steps in that direction. The AIDS threat has created a health promotion orientation among gay men of San Francisco that has produced changes in their sexual behavior, resulting in reduced rates of bacterial STDs.

Clearly, many individuals are willing and able to modify their sexual behaviors but cannot do so in a vacuum. We need support for the social engineering prescriptions that have marked our standard STD control response—screening for infection, treating active disease, eliciting the identity of sexual partners and providing easy access to condoms. Action by all Americans is needed to reduce the risks of our sexual choices.

**Willard Cates, Jr., M.D., M.P.H.**
Director, Division of Sexually Transmitted Diseases
Centers for Disease Control

# Longevity Gains by State

Significant longevity gains occurred in the United States during the 1970s. Life expectancy increased in every state in the country. Nationally, between 1969-71 and 1979-81 expectation of life at birth for the total resident population rose by 3.2 years; for males the increase was 3.1 years and for females 3.0 years. By comparison, during the previous decade the increments in life expectation were 0.8 years, 0.2 years and 1.4 years, respectively.

Between 1969-71 and 1979-81, expectation of life at birth for the total U.S. resident population rose by 3.2 years.

Notwithstanding the recent encouraging improvements in average future lifetime, substantial geographic variations remain. For example, in 1979-81 expectation of life at birth was 77.0 years in Hawaii but only 69.2 years in the District of Columbia—a difference of 7.8 years. This disparity is mainly attributed to the racial composition of the population in the respective areas. The 1980 Census of Population reported that in the District of Columbia, over two-thirds of the residents were black—the racial group with the least favorable longevity experience. On the other hand, in Hawaii almost two-thirds of the inhabitants were of Asian ethnicity—a group whose life expectancy has historically been higher than other nonwhites, or whites.

Relatively high longevity was experienced in a handful of other states. In Minnesota, Iowa, Utah, North Dakota and Nebraska, expectation of life at birth was at least 1.5 years more than the 73.9 value reported for the United States. These states were also among the longevity leaders in 1969-71. With the exception of Utah, all of these states are in the West North Central division of the country. Moreover, as can be seen from the extreme left-hand column in the accompanying table, Missouri was the only state in this division in which expectation of life at birth in 1979-81 was less than 75.0 years.

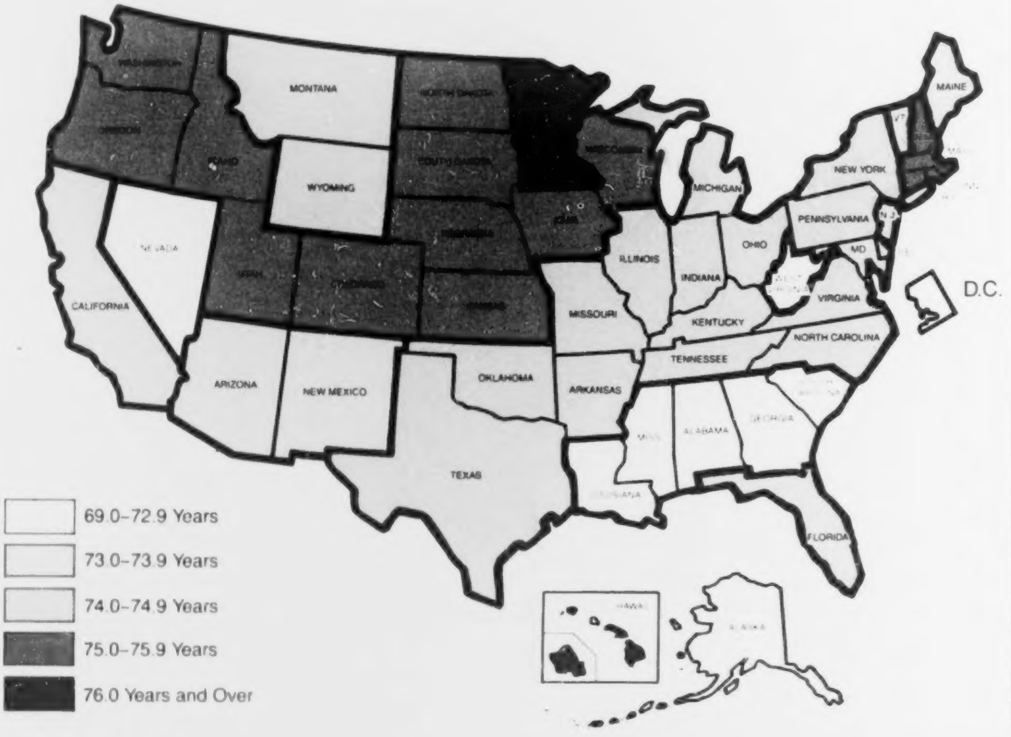
The South Atlantic states as a group experienced the least favorable longevity record.

At the other extreme, the South Atlantic states as a group experienced the least favorable longevity record. Of the eight other states in the country in which life expectancy at birth was less than 73.0 years, three, namely South Carolina, Georgia and West Virginia, are also found in this geographic division. Nevada, Alabama, Alaska, Mississippi and Louisiana are the remaining states in this unenviable category. The areas of the country with the highest and lowest expectation of life at birth values can be seen from Figure A.

## Little Narrowing in Longevity Gap

In the past decade there was no appreciable decrease in the longevity gap between the states with the best and poorest records. The difference narrowed by only 0.1 years. In general, those states with the least favorable expectation of life at birth values in 1969–71 experienced the largest improvements. For example, in Mississippi (previously ranked 49th) the increment in longevity was 3.9 years. Almost as large an increase was recorded in New Hampshire, North Carolina (ranked 44th) and South Carolina (ranked 50th). Georgia experienced an increase of 3.7 years (ranked 48th), as did Maine, New Mexico and Arizona, while the gain in the decennial period was 3.6 years in Nevada (ranked 46th). All the above-mentioned poorly ranked states moved up a notch or two in

**Figure A—Expectation of Life at Birth, by State United States, 1979–81**


WASHINGTON
OREGON
IDAHO
MONTANA
WYOMING
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
MINNESOTA
WISCONSIN
IOWA
MICHIGAN
NEW YORK
VT
MAINE
N.J.
PENNSYLVANIA
MD
D.C.
CALIFORNIA
NEVADA
UTAH
COLORADO
KANSAS
MISSOURI
ILLINOIS
INDIANA
OHIO
WEST VIRGINIA
VIRGINIA
KENTUCKY
NORTH CAROLINA
TENNESSEE
SOUTH CAROLINA
ARIZONA
NEW MEXICO
OKLAHOMA
ARKANSAS
MISS.
ALABAMA
GEORGIA
TEXAS
LOUISIANA
FLORIDA
HAWAII
ALASKA
69.0–72.9 Years
73.0–73.9 Years
74.0–74.9 Years
75.0–75.9 Years
76.0 Years and Over

# Expectation of Life and Gains in Life Expectancy, by State and Sex United States, 1979–81

| Geographic Area | Expectation of Life |  |  |  |  |  |  |  |  | Gain |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Total |  |  | Male |  |  | Female |  |  | Total |  |  |
|  | Birth | Age 25 | Age 45 | Birth | Age 25 | Age 45 | Birth | Age 25 | Age 45 | Birth | Age 25 | Age 45 |
| UNITED STATES | 73.9 | 50.8 | 32.3 | 70.1 | 47.4 | 29.2 | 77.6 | 54.2 | 35.2 | 3.2 | 2.4 | 2.2 |
| New England |  |  |  |  |  |  |  |  |  |  |  |  |
| Maine | 74.6 | 51.3 | 32.4 | 70.8 | 47.8 | 29.3 | 78.4 | 54.7 | 35.5 | 3.7 | 2.8 | 2.4 |
| New Hampshire | 75.0 | 51.6 | 32.7 | 71.4 | 48.4 | 29.7 | 78.4 | 54.7 | 35.5 | 3.8 | 2.9 | 2.7 |
| Vermont | 74.8 | 51.5 | 32.6 | 71.1 | 48.1 | 29.5 | 78.5 | 54.8 | 35.6 | 3.2 | 2.6 | 2.4 |
| Massachusetts | 75.0 | 51.5 | 32.7 | 71.3 | 48.0 | 29.6 | 78.5 | 54.7 | 35.5 | 3.2 | 2.5 | 2.3 |
| Rhode Island | 74.8 | 51.4 | 32.6 | 71.0 | 47.8 | 29.3 | 78.3 | 54.7 | 35.6 | 2.9 | 2.3 | 2.1 |
| Connecticut | 75.1 | 51.8 | 33.1 | 71.5 | 48.6 | 30.1 | 78.6 | 54.9 | 35.7 | 2.6 | 2.2 | 2.1 |
| Middle Atlantic |  |  |  |  |  |  |  |  |  |  |  |  |
| New York | 73.7 | 50.5 | 32.1 | 70.0 | 47.1 | 29.1 | 77.2 | 53.7 | 34.7 | 3.2 | 2.4 | 2.2 |
| New Jersey | 74.0 | 50.8 | 32.1 | 70.5 | 47.5 | 29.2 | 77.4 | 53.8 | 34.7 | 3.1 | 2.4 | 2.2 |
| Pennsylvania | 73.6 | 50.4 | 31.7 | 69.9 | 47.0 | 28.7 | 77.2 | 53.6 | 34.5 | 3.2 | 2.5 | 2.3 |
| East North Central |  |  |  |  |  |  |  |  |  |  |  |  |
| Ohio | 73.5 | 50.3 | 31.7 | 69.9 | 47.0 | 28.7 | 77.1 | 53.5 | 34.5 | 2.7 | 2.1 | 1.9 |
| Indiana | 73.8 | 50.7 | 32.0 | 70.2 | 47.4 | 29.0 | 77.5 | 53.9 | 34.8 | 2.9 | 2.3 | 2.0 |
| Illinois | 73.4 | 50.4 | 31.9 | 69.6 | 47.0 | 28.8 | 77.1 | 53.8 | 34.8 | 3.3 | 2.6 | 2.2 |
| Michigan | 73.7 | 50.5 | 32.0 | 70.1 | 47.2 | 29.0 | 77.3 | 53.8 | 34.9 | 3.1 | 2.3 | 2.1 |
| Wisconsin | 75.3 | 52.0 | 33.1 | 71.9 | 48.8 | 30.2 | 78.9 | 55.2 | 36.0 | 2.8 | 2.3 | 2.0 |
| West North Central |  |  |  |  |  |  |  |  |  |  |  |  |
| Minnesota | 76.2 | 52.8 | 33.9 | 72.5 | 49.5 | 30.8 | 79.8 | 56.1 | 36.9 | 3.2 | 2.5 | 2.3 |
| Iowa | 75.8 | 52.6 | 33.6 | 72.0 | 49.1 | 30.4 | 79.6 | 55.9 | 36.7 | 3.2 | 2.5 | 2.2 |
| Missouri | 73.8 | 50.8 | 32.2 | 69.9 | 47.2 | 29.0 | 77.7 | 54.3 | 35.3 | 3.1 | 2.4 | 2.0 |
| North Dakota | 75.7 | 52.6 | 33.7 | 72.1 | 49.4 | 30.8 | 79.7 | 56.1 | 36.9 | 2.9 | 2.6 | 2 |
| South Dakota | 75.0 | 52.0 | 33.5 | 71.0 | 48.4 | 30.3 | 79.2 | 55.8 | 36.8 | 2.9 | 2.0 | 1 |
| Nebraska | 75.5 | 52.3 | 33.5 | 71.7 | 48.9 | 30.3 | 79.3 | 55.7 | 36.5 | 2.9 | 2.2 | 1 |
| Kansas | 75.3 | 52.1 | 33.5 | 71.6 | 48.7 | 30.4 | 79.0 | 55.4 | 36.4 | 2.7 | 2.0 | 1 |
| South Atlantic |  |  |  |  |  |  |  |  |  |  |  |  |
| Delaware | 73.2 | 50.3 | 31.7 | 69.6 | 47.1 | 28.8 | 76.8 | 53.3 | 34.4 | 3.1 | 2.8 | 2 |
| Maryland | 73.3 | 50.2 | 31.6 | 69.7 | 46.9 | 28.6 | 76.8 | 53.4 | 34.4 | 3.1 | 2.5 | 2 |
| District of Columbia | 69.2 | 47.1 | 29.4 | 64.5 | 42.7 | 25.7 | 73.7 | 51.3 | 32.9 | 3.5 | 3.0 | 2 |
| Virginia | 73.4 | 50.2 | 31.6 | 69.6 | 46.6 | 28.3 | 77.3 | 53.8 | 34.7 | 3.3 | 2.5 | 2 |
| West Virginia | 72.8 | 49.8 | 31.3 | 68.9 | 46.1 | 28.1 | 76.9 | 53.4 | 34.5 | 3.3 | 2.5 | 2 |
| North Carolina | 73.0 | 50.0 | 31.6 | 68.6 | 45.9 | 28.0 | 77.3 | 54.0 | 35.1 | 3.8 | 2.8 | 2 |
| South Carolina | 71.8 | 49.0 | 30.8 | 67.6 | 45.0 | 27.3 | 76.1 | 52.9 | 34.2 | 3.8 | 3.1 | 2 |
| Georgia | 72.2 | 49.4 | 31.1 | 68.0 | 45.5 | 27.6 | 76.4 | 53.1 | 34.3 | 3.7 | 2.9 | 2 |
| Florida | 74.0 | 51.3 | 33.0 | 70.1 | 47.7 | 29.9 | 78.0 | 54.8 | 36.0 | 3.3 | 2.7 | 2 |
| East South Central |  |  |  |  |  |  |  |  |  |  |  |  |
| Kentucky | 73.1 | 49.9 | 31.4 | 69.1 | 46.3 | 28.3 | 77.1 | 53.6 | 34.6 | 3.0 | 2.1 | 1 |
| Tennessee | 73.3 | 50.3 | 31.8 | 69.2 | 46.4 | 28.4 | 77.5 | 54.1 | 35.1 | 3.2 | 2.4 | 2 |
| Alabama | 72.5 | 49.6 | 31.4 | 68.3 | 45.7 | 27.9 | 76.8 | 53.5 | 34.7 | 3.4 | 2.4 | 2 |
| Mississippi | 72.0 | 49.4 | 31.3 | 67.6 | 45.5 | 27.9 | 76.4 | 53.3 | 34.6 | 3.9 | 2.7 | 2 |
| West South Central |  |  |  |  |  |  |  |  |  |  |  |  |
| Arkansas | 73.7 | 50.7 | 32.3 | 69.7 | 47.0 | 29.0 | 77.8 | 54.5 | 35.5 | 3.0 | 2.1 | 1 |
| Louisiana | 71.7 | 49.0 | 30.9 | 67.6 | 45.3 | 27.8 | 75.9 | 52.7 | 33.9 | 2.9 | 2.2 | 2 |
| Oklahoma | 73.7 | 50.7 | 32.3 | 69.6 | 47.0 | 29.0 | 77.8 | 54.4 | 35.5 | 2.3 | 1.6 | 1 |
| Texas | 73.6 | 50.7 | 32.3 | 69.7 | 47.1 | 29.2 | 77.7 | 54.3 | 35.3 | 2.7 | 2.0 | 1 |
| Mountain |  |  |  |  |  |  |  |  |  |  |  |  |
| Montana | 73.9 | 51.1 | 32.7 | 70.5 | 48.0 | 29.9 | 77.7 | 54.4 | 35.5 | 3.3 | 2.5 | 2 |
| Idaho | 75.2 | 52.2 | 33.5 | 71.5 | 49.0 | 30.8 | 79.2 | 55.5 | 36.4 | 3.3 | 2.6 | 2 |
| Wyoming | 73.8 | 51.0 | 32.6 | 70.0 | 47.7 | 29.9 | 78.2 | 54.6 | 35.6 | 3.5 | 2.3 | 1 |
| Colorado | 75.3 | 52.0 | 33.4 | 71.8 | 48.7 | 30.5 | 78.8 | 55.2 | 36.2 | 3.2 | 2.3 | 2 |
| New Mexico | 74.0 | 51.3 | 33.2 | 69.9 | 47.8 | 30.3 | 78.3 | 54.9 | 36.1 | 3.7 | 2.8 | 2 |
| Arizona | 74.3 | 51.5 | 33.1 | 70.5 | 48.1 | 30.2 | 78.3 | 54.9 | 36.0 | 3.7 | 3.1 | 2 |
| Utah | 75.8 | 52.5 | 33.7 | 72.4 | 49.5 | 31.0 | 79.2 | 55.5 | 36.3 | 2.9 | 2.3 | 2 |
| Nevada | 72.6 | 49.9 | 31.7 | 69.3 | 46.9 | 29.0 | 76.5 | 53.3 | 34.6 | 3.6 | 2.7 | 2 |
| Pacific |  |  |  |  |  |  |  |  |  |  |  |  |
| Washington | 75.1 | 51.9 | 33.2 | 71.7 | 48.8 | 30.5 | 78.6 | 55.0 | 35.9 | 3.4 | 2.7 | 2 |
| Oregon | 75.0 | 51.9 | 33.1 | 71.3 | 48.6 | 30.1 | 78.8 | 55.2 | 36.1 | 2.9 | 2.3 | 2 |
| California | 74.6 | 51.4 | 32.9 | 71.1 | 48.3 | 30.1 | 78.0 | 54.4 | 35.5 | 2.9 | 2.2 | 2 |
| Alaska | 72.2 | 49.7 | 31.6 | 68.7 | 46.7 | 29.1 | 76.9 | 53.7 | 34.9 | 2.9 | 2.3 | 1 |
| Hawaii | 77.0 | 53.7 | 34.9 | 74.1 | 51.0 | 32.5 | 80.3 | 56.6 | 37.5 | 3.4 | 2.9 | 2 |

Source: National Center for Health Statistics, U.S. Decennial State Life Tables for 1969–71 and 1979–81 fe Expectancy, 1969–71 to 1979–81

| Male<br>Birth | Age 25 | Age 45 | Female<br>Birth | Age 25 | Age 45 |
|---|---|---|---|---|---|
| 3.1 | 2.3 | 2.0 | 3.0 | 2.4 | 2.1 |
| | | | | | |
| 3.6 | 2.6 | 2.3 | 3.5 | 2.8 | 2.4 |
| 3.9 | 3.1 | 2.8 | 3.2 | 2.6 | 2.4 |
| 3.3 | 2.5 | 2.3 | 2.7 | 2.3 | 2.2 |
| 3.2 | 2.4 | 2.3 | 3.1 | 2.5 | 2.1 |
| 2.7 | 1.9 | 1.9 | 2.8 | 2.4 | 2.2 |
| 2.5 | 2.1 | 2.0 | 2.7 | 2.1 | 1.9 |
| | | | | | |
| 3.0 | 2.2 | 2.0 | 3.0 | 2.5 | 2.1 |
| 3.0 | 2.2 | 2.0 | 3.0 | 2.4 | 2.1 |
| 3.0 | 2.3 | 2.1 | 3.1 | 2.5 | 2.2 |
| | | | | | |
| 2.7 | 1.9 | 1.7 | 2.6 | 2.0 | 1.8 |
| 3.0 | 2.2 | 1.9 | 2.8 | 2.1 | 1.8 |
| 3.1 | 2.4 | 2.1 | 3.1 | 2.6 | 2.2 |
| 3.0 | 2.1 | 1.9 | 2.8 | 2.2 | 2.0 |
| 2.7 | 2.1 | 1.9 | 2.9 | 2.3 | 2.0 |
| | | | | | |
| 3.1 | 2.3 | 2.1 | 3.0 | 2.4 | 2.3 |
| 3.2 | 2.3 | 2.0 | 3.1 | 2.4 | 2.2 |
| 3.0 | 2.2 | 1.9 | 3.0 | 2.4 | 2.0 |
| 2.9 | 2.5 | 2.0 | 2.7 | 2.3 | 2.1 |
| 2.5 | 1.6 | 1.5 | 3.0 | 2.3 | 1.9 |
| 2.8 | 2.1 | 1.7 | 2.7 | 2.0 | 1.8 |
| 2.8 | 1.9 | 1.9 | 2.5 | 1.9 | 1.8 |
| | | | | | |
| 3.3 | 3.0 | 2.8 | 2.7 | 2.2 | 2.1 |
| 3.2 | 2.6 | 2.2 | 2.6 | 2.2 | 1.9 |
| 3.6 | 3.0 | 2.0 | 3.2 | 2.9 | 2.0 |
| 3.3 | 2.4 | 2.0 | 3.1 | 2.4 | 2.0 |
| 3.3 | 2.2 | 1.9 | 3.2 | 2.4 | 2.2 |
| 3.7 | 2.6 | 2.1 | 3.5 | 2.8 | 2.3 |
| 3.8 | 2.8 | 2.2 | 3.8 | 3.1 | 2.6 |
| 3.7 | 2.9 | 2.2 | 3.4 | 2.7 | 2.1 |
| 3.5 | 2.7 | 2.4 | 3.0 | 2.4 | 2.0 |
| | | | | | |
| 2.9 | 2.0 | 1.6 | 2.2 | 2.1 | 1.7 |
| 3.0 | 2.0 | 1.7 | 3.2 | 2.6 | 2.1 |
| 3.4 | 2.2 | 1.6 | 3.4 | 2.5 | 2.1 |
| 3.5 | 2.3 | 1.7 | 4.0 | 2.9 | 2.3 |
| | | | | | |
| 3.0 | 1.9 | 1.6 | 2.8 | 2.2 | 1.8 |
| 2.7 | 2.0 | 1.9 | 3.0 | 2.3 | 2.0 |
| 2.2 | 1.5 | 1.3 | 2.1 | 1.5 | 1.3 |
| 2.6 | 1.8 | 1.7 | 2.7 | 2.0 | 1.6 |
| | | | | | |
| 3.8 | 2.6 | 2.1 | 2.6 | 1.9 | 1.6 |
| 3.3 | 2.5 | 2.2 | 3.1 | 2.3 | 1.9 |
| 3.8 | 2.6 | 2.1 | 3.0 | 1.7 | 1.5 |
| 3.4 | 2.3 | 2.0 | 2.9 | 2.1 | 1.9 |
| 3.4 | 2.5 | 2.1 | 3.8 | 2.9 | 2.6 |
| 3.9 | 3.2 | 2.8 | 3.3 | 2.5 | 2.1 |
| 2.9 | 2.4 | 2.2 | 2.6 | 2.1 | 1.9 |
| 3.7 | 2.6 | 2.4 | 3.2 | 2.4 | 2.2 |
| | | | | | |
| 3.6 | 2.9 | 2.7 | 2.8 | 2.3 | 2.1 |
| 2.9 | 2.2 | 1.9 | 2.6 | 2.0 | 1.8 |
| [illegible] | 2.3 | 2.1 | 2.6 | 2.1 | 1.8 |
| [illegible] | 2.1 | 1.7 | 2.9 | 2.3 | 1.8 |
| [illegible] | 2.5 | 2.4 | 3.5 | 3.0 | 2.8 |

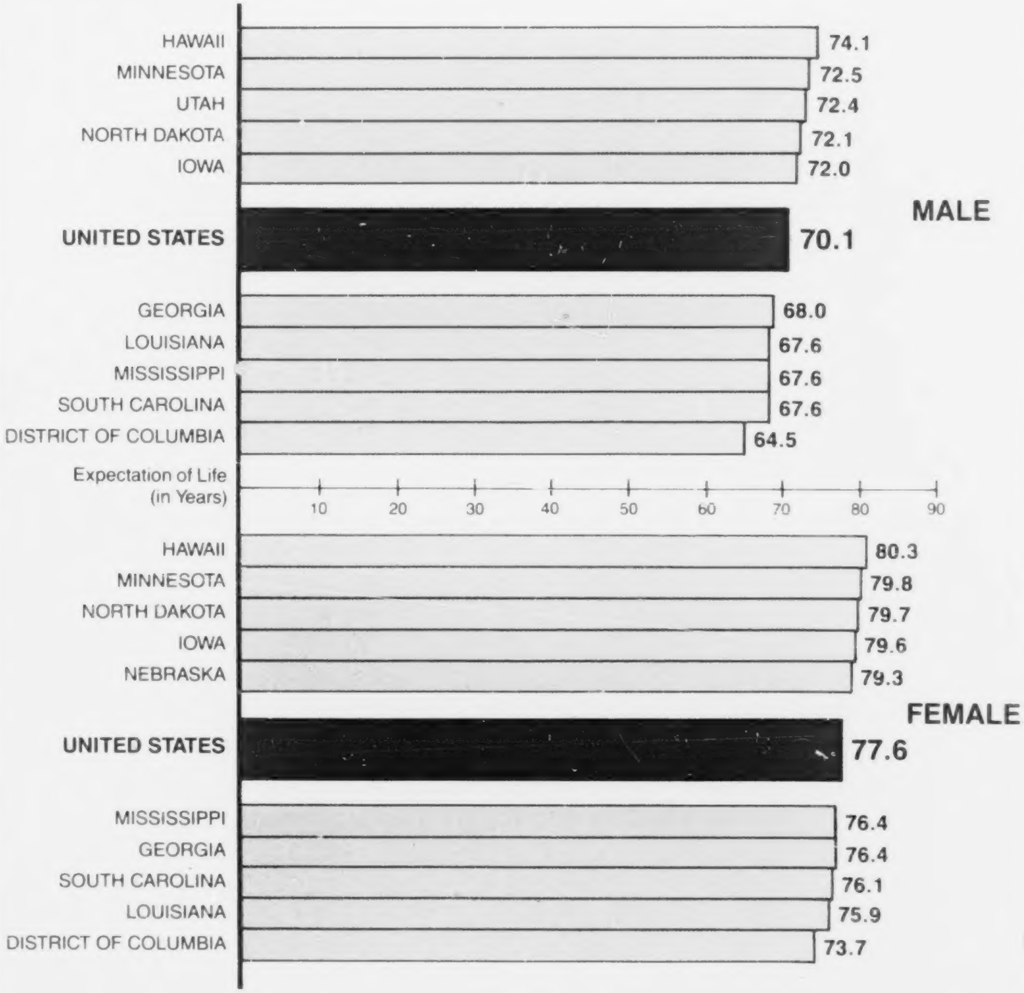
the relative standings in 1979–81. Most notable was the 12-position advance of New Mexico (to 22d) and the 10-place increase of Arizona (to 21st). The favorable shift in relative longevity positions of each of the latter two states is mainly attributed to the sharp decline in their infant mortality rates. Additionally, large numbers of healthy retirees settled within their borders during the period under review, thereby reducing mortality rates among the elderly.

Although longevity at birth improved in each state during the decade, there were some instances where it lagged significantly. Expectation of life for newborns in Oklahoma increased by only 2.5 years. As a result, Oklahoma's ranking fell from 19th to 31st (below the U.S. average). In Connecticut the longevity gain was 2.6 years and was 2.7 years in Kansas, Texas and Ohio. In the latter two populous states the relative rankings of average life expectancy dropped sharply (10 positions) to 33d and 35th, respectively. The gain in average future lifetime at birth during the period was less than 3 years in 11 other states.

## Diminishing Longevity Gains With Age

Both geographic longevity differences and expectancy gains narrowed with advance in age. At age 25 the average remaining

**Figure B—States With Highest and Lowest Expectation of Life at Birth, by Sex United States, 1979–81**



lifetime varied by 6.6 years—from 53.7 years in Hawaii to 47.1 years in the District of Columbia. Life expectancy was also low in South Carolina and Louisiana (49.0 years) but was comparatively high in Minnesota (52.8 years), Iowa and North Dakota (52.6 years). Oklahoma was the only state in the country in which expectation of life at age 25 increased by less than 2.0 years—namely, 1.6 years. The life expectancy gain was nearly double (3.1 years) in South Carolina and Arizona and was 3.0 years in the District of Columbia.

The tendency for diminished longevity variations continued at age 45. Thus the gap between the areas with the best record—once again Hawaii (34.9 years)—and the least favorable—the District of Columbia (29.4 years)—narrowed to 5.5 years. South Carolina and Louisiana recorded life expectancies at age 45 of less than 31 years. As a group the residents of the West North Central states experienced the most favorable longevity. Similar to the experience at birth and age 25, the average remaining lifetime for Oklahoma residents at 45 increased by the smallest absolute amount—1.4 years; on the other hand, the largest increment was observed in New Hampshire and Hawaii—2.7 years.

Newborn boys and girls in the District of Columbia had the least favorable longevity outlook in the nation.

Analysis of the sex differences in the 1979-81 state life tables reveals numerous similarities. On the average, expectation of life at birth for girls was 7.5 years longer than for boys. Longevity for newborn girls was highest in Hawaii, followed by that in Minnesota, North Dakota and Iowa. For baby boys, the same states as well as Utah reported the highest expectancy at birth. Figure B presents the states with the highest and lowest expectation of life at birth. As can be noted, newborn boys and girls in the District of Columbia had the least favorable longevity outlook in the nation. Future expectancy for boys was way below average in South Carolina, Mississippi and Louisiana and was just slightly better in Georgia. For girls, the ranking order was somewhat different but the same states reported unfavorable life expectancies. The longevity gains during the past decade in individual states at birth, age 25 and at age 45 appear in the right-hand column of the table.

## Longevity Factors

Longevity disparities between states result from a variety of factors. Certainly the racial composition of the population plays an important role. Other contributing variables include life-style factors (e.g., smoking, diet), heredity, living standards, adequacy of health and hospital facilities, and possibly climatic conditions. With the passage of time, these geographic mortality differentials may diminish through medical care advances, better maternal care programs and increased public health education.

# Capsule Briefs

**are timely literature selections with broad reader interest.**

## "Out, Damn Spot!"

How long will the United States' memory of the Vietnam War seem like Shakespeare's Lady Macbeth trying to rid herself of guilt over Duncan's murder? This ingenious epidemiologic study of death rates in men eligible for draft by lottery (and compared to those not eligible) demonstrated long-term effects of the Vietnam War. Total mortality, suicide and vehicular deaths were all significantly higher in the group eligible for the draft and even greater in those who actually served. A separate, controlled analysis of veterans compared to non-veterans confirmed these findings. Conclusion: military service during the Vietnam War caused the subsequent increase in deaths from suicide and auto accidents. Alas, soap and water won't remove the stain. (Hearst, N., *et al.* *New England Journal of Medicine* 314:620-4, 1986.)

## Heavy Drinkers Have Hemorrhagic Strokes More Often Than Teetotalers

That is the conclusion of a report from the Honolulu Heart Program, which followed 8,006 men since 1965 in a prospective study of cardiovascular disease. The risk of hemorrhagic strokes (which differ from thromboembolic types by bursting an artery rather than obstructing it) increased threefold in heavy drinkers compared to nondrinkers. A finding like this should fuel the current trend toward lighter drinking habits. (Donahue, R., *et al.* *JAMA* 255:2311-14, 1986.)

## Pressure on a Drug For High Blood Pressure

The 10-year Multiple Risk Factor Intervention Trial was designed to test the preventability of coronary heart disease through low-fat diet, smoking cessation and blood pressure control in 12,800 high-risk men. At the end, no statistical difference was noted between those men who received special intervention and those treated by their usual source of medical care. The result was puzzling, particularly because increased mortality was recorded for men receiving the drug hydrochlorothiazide to control their high blood pressure. Despite rigorous efforts to better understand this unexpected result, it remains merely an observation, with some weak confirmation from other studies. It leaves open the question of how to treat those currently taking thiazide drugs. (Kuller, L.H., *et al.* *Circulation* 73:114-23, 1986.)

## Board Certification Status: Not an Index of Physician Quality?

In this study of ambulatory care, which reviewed 14,203 patient care episodes treated by 1,156 physicians in a Midwest metropolitan area 1974-77, the authors concluded (p. 253): "Board certification was not a necessary and sufficient condition to high-quality (ambulatory) care." The authors are part of a highly respected medical care investigative team at the University of Michigan. If their conclusion is valid, it raises serious and complex questions about the most useful criteria to estimate competence for quality medical service in individual physicians. (Rhee, S., *et al.* *Medical Care* 24:248-58, 1986.)

## Fat Children: Why Are There More And More of Them?

Did you know that federal government nutrition surveys have found that obesity in 6-to-11-year-olds in the United States has increased 54 percent in the last 15 to 20 years? Or, that from these same surveys it was found that television-watching by children was strongly, significantly associated with obesity? If not, then you may be interested in this valuable, brief report of a March 1986 federally sponsored conference among leading obesity researchers in the United States. Despite the increasing fund of information, the causes of overweight in childhood become more complicated as studies widen their focus to include metabolism, genetics and behavioral factors. (Kolata, G., *Science* 232:20-21, 1986.)

## The High Health Insurance Costs of AIDS

Data from the Health Insurance Association of America, the trade association for the health insurance industry, indicate that the medical care charges for treating individual AIDS cases are between $39,000 and $140,000. Some cases have had charges as high as $250,000. It is only a matter of time before employer-sponsored health insurance contracts are affected by AIDS in the workplace. (Young, L.P., *Journal of Commerce*, May 16, 1986.)

## The Uninsured in America—A Growing Problem

Between 1980 and 1984, the percentage of Americans under age 65 without health insurance gradually increased from 14.6 percent to 17.1 percent, or to about 35 million persons. In an era in which both public and private payers and insurance carriers have tried to reduce the costs of medical care, major losers in this move to efficiency have been millions of families without access to government, private group or individual health insurance coverage. For example, changes in state funding of California's Medicaid law in 1982 dropped more than 250,000 individuals from further insurance coverage. A grim picture emerges. Wasn't access to medical care once believed a "right"? (Hull, J.B., *Wall Street Journal*, June 3, 1986.)

## Federal Study Confirms "Nuclear Winter" Theory

Nuclear winter was proposed in 1983 by a team of international scientists using computer simulation. They predicted that smoke and ash rising from fires after thermonuclear exchanges in wartime would persist in the atmosphere for many months, sharply reducing world sunlight. Serious global cooling would ensue—sufficient to alter world economies, reduce crop yields and add further misery to a world trying to recover from radiation injuries, destruction and havoc created by multiple nuclear explosions. Subsequent studies have reduced the prediction of cooling, but the main thesis has held. This study by three prestigious federal research units further confirms the theory. Scientists are now trying to decide whether global cooling will be 25 or 45 degrees below normal. (Gleick, J., *The New York Times*, p. 1, June 22, 1985.)

# Changing Profile of Births in the United States

Women in the United States continue to defer motherhood. The trend, which began in 1972, resulted in the median age of childbearing increasing from 25.3 years to 25.9 years in 1983—the highest level since 1952. Although post-1983 data are not available, indications are that the median age of women who bear children continued to rise.

The shift in initial family formation to later ages has occurred in the past decade. In 1983 the median age at which women had their first child reached a post-World War II record high of 23.3 years—an increase of 1.3 years from 1972. It is also noteworthy that the age at which women bear their second or third babies has steadily risen since the early 1960s. There has been little, if any, increase since the early 1970s in the median age of mothers for higher order births. The dramatic switch in choosing to have children later in life can, in part, be attributed to the desire of increasing numbers of women to complete education and training, and to hold full-time jobs.

## Number of Births Rising

Notwithstanding women's decisions to delay childbirth, the number of births last year rose to the highest level in two decades. According to the National Center for Health Statistics, the provisional count for newborns reached 3,749,000 in 1985. This compares with an estimated 3,697,000 live births in 1984 and 3,638,933 registered births in 1983. An analysis of the trend in the number of births reveals that, after attaining a peak of 4.3 million in 1957, births remained above 4 million through the early 1960s, then declined to 3,760,358 in 1965. In 1973 there were only 3,136,965 births in the United States, and in 1976 the upward trend in births began. Projections by the Bureau of Census indicate that the number of newborns will continue to rise slightly until the late 1980s because of the increase in the total number of women of childbearing ages. Figure A presents the post-World War II trend in live births.

The number of births last year rose to the highest level in two decades

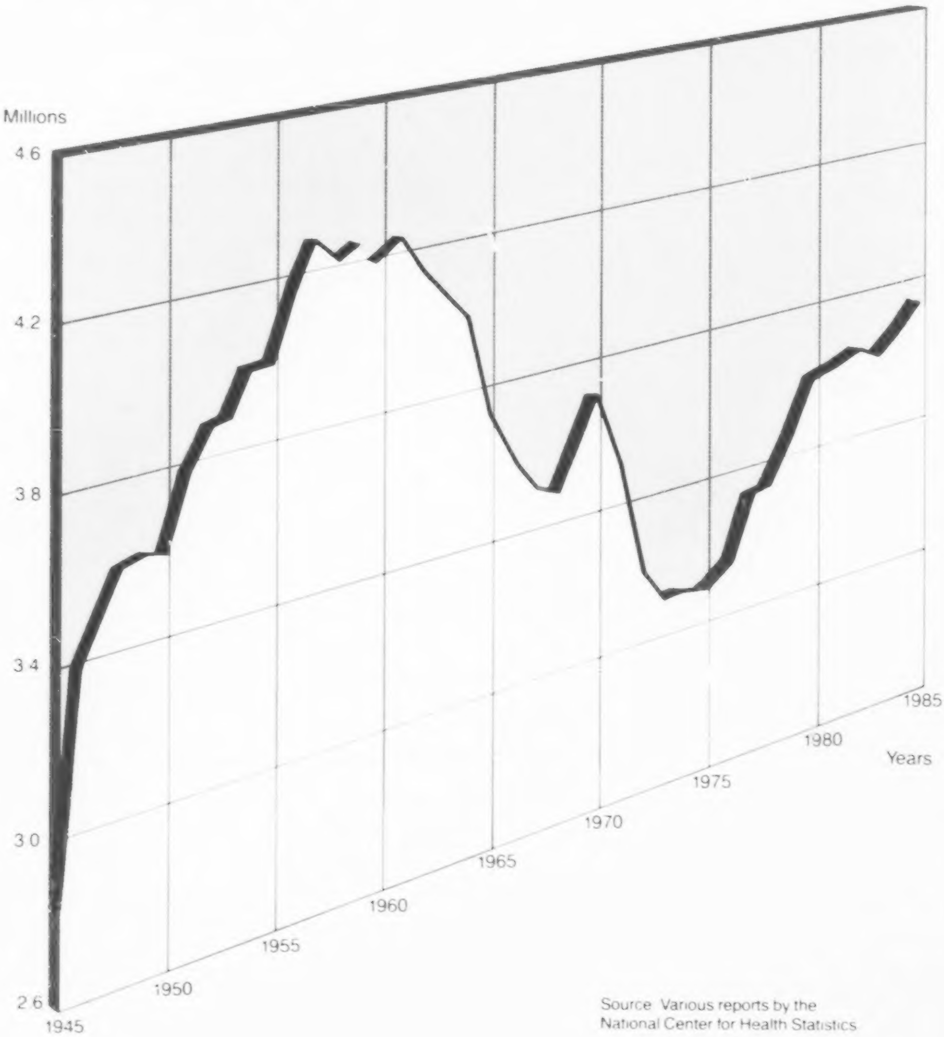
## Age-Specific Rates Changing

The number of births occurring in any given year is the complex result of the number of women aged 15–44, the biological factors affecting fertility, and economic, social and psychological factors. An examination of the age-specific birth rates discloses that since the 1970s there have been startling changes in the pattern of births by age of mother and order of birth. First, the proportion of births to women under 20 has sharply declined. More significant, however, is the pronounced increase in the rate of first births to older women. These findings were documented for the 1970s in a report from the National Center for Health Statistics. Since then, the trend to delay motherhood has intensified.

Since the 1970s there have been startling changes in the pattern of births by age of mother and order of birth

There is a marked increase in the rate of first births to older women

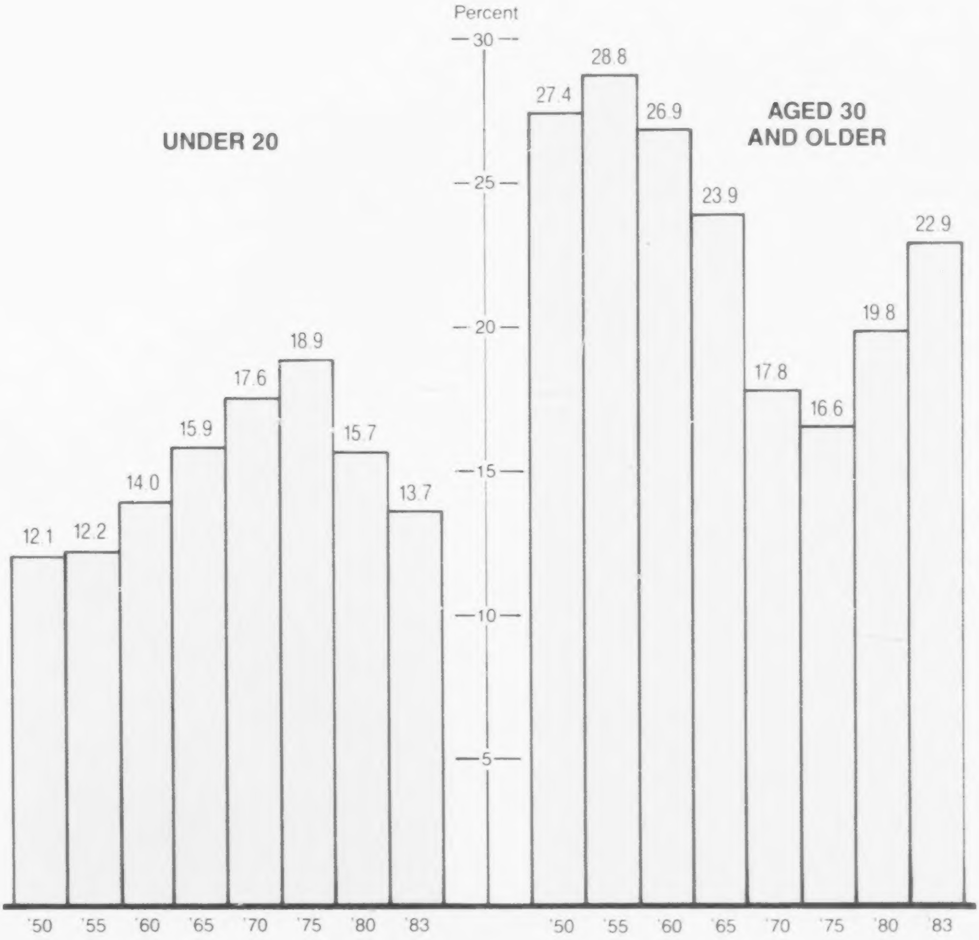
## Figure A—Number of Live Births
## United States, 1945–85



Source: Various reports by the
National Center for Health Statistics

Births for 1959 and prior years have
been adjusted for underregistration

**Figure B—Percentage of Total Live Births by Age of Mother United States, 1950–83**



Source: Reports by the Bureau of the Census and the National Center for Health Statistics

The marked increase in first birth rates for women in their 30s occurred simultaneously with a decline in birth rates for younger women. Between 1972 and 1983 first birth rates for women aged 30–39 more than doubled. The rate increased from 7.0 per 1,000 to 15.4 per 1,000 for those aged 30–34, and from 1.8 per 1,000 to 3.7 per 1,000 for those 35–39 years of age. During this period the first birth rate for women aged 25–29 rose from 29.4 per 1,000 in 1972 to 38.8 per 1,000 in 1981 but has since declined to 37.9 per 1,000 in 1983. On the other hand, between 1972 and 1983 the first birth rate for women aged 20–24 declined by 13 percent—the rate fell from 61.0 per 1,000 to 52.9 per 1,000. The decrease for younger women was somewhat sharper—the rate declined from 49.4 per 1,000 to 40.2 per 1,000 or by 19 percent. Partially as a result of these divergent trends, by 1983 births to mothers under 20 years of age accounted for just 13.7 percent of all births; in 1972 the relative number was 19.3 percent. By contrast, the proportion of births to mothers aged 30 or older increased from 17.0 percent to 22.9 percent. See Figure B for the graphics that demonstrate these changes.

## The Effect of Evolving Roles

The traditional role of a wife in the American family has been gradually evolving over the past few decades. No longer can a wife be expected to be solely a homemaker and mother. Women today are increasingly career oriented. The proportion of mothers who were college graduates rose to 16 percent in 1983 from 14 percent in 1980 and 8 percent in 1970. The motivation for some women to complete their education and establish an independent income may be a contingency against possible marital dissolution; for others it is a financial necessity. Personal fulfillment, the desire for an improved family lifestyle and higher living standards are often coupled with the intention to have fewer children. These factors and the availability of modern contraceptives all contribute to the growing number of working wives and women postponing motherhood.

Levels of childlessness among women in their 30s are higher than they have been for more than 30 years

There can be significant consequences in delayed childbirth. With advance in age, biological factors may impair capacity to become pregnant, and the risks of labor abnormalities increase. These factors, in conjunction with continued career and life-style aspirations, translate into smaller families. Increased numbers of couples remain childless. Levels of childlessness among women in their 30s are currently higher than they have been for more than 30 years.

Women considering postponing childbearing must not only evaluate the potential risks to themselves but also those to their newborns. The incidence of birth defects rises with maternal age. Fortunately, however, studies have indicated that these risks can be alleviated or reduced by better education, eliminating smoking, genetic counseling, elective abortion and medical advances in fetal diagnosis.

## Altered Patterns of Childbearing

The trend to delayed motherhood is vividly evident from the altered pattern of childbearing. This may be ascertained from the table, which presents the distribution of live births by age of mother and birth order. In 1983 fully three-fourths of all births were either the mother's first or second child; in 1970 the proportion was two-thirds. As can be seen from scanning across the advancing age groups, there were no noteworthy

## Live Births by Age of Mother and Birth Order
## United States, 1970–83

| Birth Order | All Ages | Age of Mother<br>Under 15 | 15–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 |
|---|---|---|---|---|---|---|---|---|---|
| **1983** | | | | | | | | | |
| Number | 3,638,933 | 9,752 | 489,286 | 1,160,274 | 1,147,720 | 624,516 | 180,353 | 25,882 | 1,150 |
| Percent Distribution | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| First | 42.3 | 97.0 | 77.7 | 48.9 | 34.9 | 23.8 | 16.8 | 11.5 | 7.1 |
| Second | 32.8 | 2.7 | 18.7 | 35.0 | 37.1 | 34.9 | 25.9 | 15.1 | 7.7 |
| Third | 15.3 | 0.3 | 3.2 | 12.1 | 18.3 | 23.2 | 23.5 | 16.8 | 9.5 |
| Fourth | 5.7 | 0.0 | 0.4 | 3.1 | 6.5 | 10.2 | 14.7 | 15.7 | 10.6 |
| Fifth | 2.1 | 0.0 | 0.0 | 0.7 | 2.1 | 4.3 | 8.0 | 12.6 | 14.0 |
| Sixth and Over | 1.8 | 0.0 | 0.0 | 0.2 | 1.1 | 3.6 | 11.1 | 28.3 | 51.1 |
| **1980** | | | | | | | | | |
| Number | 3,612,258 | 10,169 | 552,161 | 1,226,200 | 1,108,291 | 550,354 | 140,793 | 23,090 | 1,200 |
| Percent Distribution | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| First | 43.2 | 97.2 | 78.1 | 49.8 | 33.8 | 20.7 | 13.0 | 8.6 | 5.0 |
| Second | 31.9 | 2.6 | 18.5 | 34.6 | 37.1 | 33.4 | 21.2 | 11.6 | 6.6 |
| Third | 15.0 | 0.1 | 2.9 | 11.7 | 19.0 | 24.6 | 22.6 | 14.0 | 8.2 |
| Fourth | 5.6 | 0.1 | 0.4 | 3.0 | 6.7 | 11.6 | 16.5 | 15.4 | 11.7 |
| Fifth | 2.2 | 0.0 | 0.1 | 0.7 | 2.2 | 5.1 | 10.4 | 13.0 | 11.9 |
| Sixth and Over | 2.1 | 0.0 | 0.0 | 0.2 | 1.2 | 4.6 | 16.3 | 37.4 | 56.6 |
| **1970** | | | | | | | | | |
| Number | 3,731,386 | 11,752 | 644,708 | 1,418,874 | 994,904 | 427,806 | 180,244 | 49,952 | 3,146 |
| Percent Distribution | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| First | 38.8 | 95.2 | 78.6 | 46.6 | 21.5 | 10.0 | 6.5 | 4.9 | 5.7 |
| Second | 27.5 | 3.8 | 17.8 | 34.6 | 31.9 | 18.4 | 10.9 | 7.7 | 5.8 |
| Third | 15.5 | 0.7 | 3.1 | 12.9 | 24.2 | 23.5 | 16.2 | 11.6 | 9.1 |
| Fourth | 8.2 | 0.3 | 0.5 | 4.1 | 12.3 | 19.0 | 17.5 | 14.3 | 11.8 |
| Fifth | 4.3 | 0.0 | 0.0 | 1.3 | 5.7 | 12.2 | 14.8 | 13.7 | 10.3 |
| Sixth and Over | 5.7 | 0.0 | 0.0 | 0.5 | 4.4 | 16.9 | 34.1 | 47.8 | 57.3 |

Source of basic data: Various reports from the National Center for Health Statistics

changes in the sequence of births to mothers under 25 years of age. The first notable difference occurred among mothers aged 25–29. Among these women the proportion who bore their first or second child rose from 53.4 percent in 1970 to 72 percent in 1983. Within this grouping the relative number who had their first child rose from 21.5 percent to 34.9 percent. Most conspicuous was the experience of women aged 30–34. In 1970 just 28.4 percent of the births were of a first or second child—first births accounted for 10.0 percent and second births 18.4 percent. By 1980 the proportion of first births to women aged 30–34 more than doubled and the relative rise was nearly as large for second births. In 1983 the combined total rose to 58.7 percent of the 624,516 births to mothers aged 30–34. A similar shift occurred among women 35–39 years of age. Although the number of births to women aged 35–39 is not very large—just 5 percent of all 1983 live births—more than two-fifths were the first or second birth. This compares with 34.2 percent as recently as 1980 and just 17.4 percent in 1970. At ages 40–44 the recent trend to postponed family formation was also evident, but not as dramatic.

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Projections indicate that the decline in average size of the American family will continue unabated into the next century.

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It is a matter of conjecture how much longer the current pattern of childbearing will endure. However, projections by the Bureau of Census indicate that the decline in average size of the American family will continue unabated into the next century. Thus the full social and economic effects of deferred births are yet to be determined.

## References

[1] Spencer, G.: Projections of the Population of the United States by Age, Sex, and Race: 1983 to 2080. U.S. Bureau of the Census. *Current Population Reports*, Series P-25, No. 952, May 1984.

[2] "Trends in teenage childbearing, 1970-83." *Statistical Bulletin* 3-9, Jan-Mar 1986.

[3] Ventura, S.J.: Trends in first births to older mothers, 1970-79. National Center for Health Statistics. *Monthly Vital Statistics Report*. Vol. 31, No. 2, Supp. (2). DHHS Pub. No. (PHS) 82-1120. Hyattsville, Md.: Public Health Service, May 1982.

[4] National Center for Health Statistics: *Advance Report of Final Natality Statistics, 1983. Monthly Vital Statistics Report*. Vol. 34, No. 6, Supp. DHHS Pub. No. (PHS) 85-1120. Hyattsville, Md.: Public Health Service, Sept. 1985.

[5] Mosher, W.D., Pratt, W.F.: Reproductive impairments among married couples: United States. National Center for Health Statistics. *Vital & Health Statistics*, Ser. 23, No. 11. DHHS Publication No. (PHS) 83-1987. Hyattsville, Md.: Public Health Service, Dec. 1982.

[6] Cohen, W.R., Newman, L., Friedman, E.A.: Risk of labor abnormalities with advancing maternal age. *Obstetrics & Gynecology* 55(4), 1980.

[7] Goldberg, M.F., Edmonds, L.D., Oakley, G.P.: Reducing birth defect risk in advanced maternal age. *JAMA* 242(21), 1979.

[8] Ventura, S.J., Hendershot, G.E.: Infant health consequences of childbearing by teenagers and older mothers. *Public Health Reports* 99(2), 1984.

[9] Roghmann, K.J., Doherty, R.A.: Reassurance through prenatal diagnosis and willingness to bear children after age 35. *AJPH* 73(7), 1983.

[10] Fortney, J.A., Higgins, J.E., Diaz-Infante, A., Hefnawi, F., Lampe, L.G., Batar, I.: Childbearing after age 35: Its effect on early perinatal outcomes. *J. of Biosocial Science*, Jan. 1982.

[11] "Projections of the Number of Households and Families: 1986 to 2000." U.S. Bureau of the Census. *Current Population Reports*, Series P-25, No. 986, May 1986.

# Regional Variation in Pancreatic Cancer Mortality

Cancer of the pancreas is second only to a rare form of brain tumor in its case fatality rate. Its victims live, on the average, only three months after diagnosis. Since 1950 pancreatic cancer incidence has more than tripled, although more recently the rates have been leveling off. The American Cancer Society estimates that this year the disease will claim 24,000 lives while more than 25,000 new cases will be diagnosed. Although this disease is relatively uncommon, it is the fourth leading cause of cancer death among Americans, behind lung, colon, and prostate cancers for men and lung, breast and colon cancers for women.

> Since 1950 pancreatic cancer incidence has more than tripled.

A great deal of biomedical and epidemiologic research has been conducted to determine causes, early detection, new treatment approaches, and possible preventive and/or better control methods for pancreatic cancer. Factors implicated in the development of this disease include cigarette smoking, chronic pancreatitis, exposure to certain chemicals and occupational carcinogens, diabetes among women, and consumption of fat, particularly vegetable oils. Among these factors, cigarette smoking is one of the most frequently mentioned risk factor. Estimates vary from a two- to sixfold increase in risk among smokers of one or more packs of cigarettes a day. Some estimate that if no one smoked cigarettes, cancer of the pancreas would kill approximately 40 percent fewer men and 10 percent fewer women.

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Mortality rates from pancreatic cancer differ both between the sexes and by geographic area. The following regional analysis of pancreas cancer mortality includes 33,208 deaths among all men and 30,961 deaths among all women in the United States. Rates are reported for all races combined; whites accounted for 88 percent of this total. The mortality data are for the period 1979–81, inclusive, and are those deaths assigned to International Classification of Diseases, Ninth Revision, Code 157. These data represent the latest years for which official figures are available and for which Metropolitan Life statisticians could compute rates for individual states and divisions within the country. Rates are reported per 100,000 population for five 10-year age groupings from 45 to 85 and over. The combined death rate has been age-adjusted because of differences in the age composition of state populations. States in

# Table 1—Mortality From Cancer of the Pancreas Among Men Aged 45 and Over United States, 1979–81

| Area | Ages 45 & Over* | Ages 45–54 | Ages 55–64 | Ages 65–74 | Ages 75–84 | Ages 85 & Over |
|---|---|---|---|---|---|---|
| UNITED STATES | 29.2 | 9.3 | 25.9 | 56.2 | 88.6 | 102.8 |
| New England | 29.3 | 9.1 | 25.5 | 57.3 | 91.0 | 123.1 |
| Maine | 34.3 | 12.9 | 26.4 | 67.8 | 101.9 | 168.4 |
| New Hampshire | 34.4 | † | 25.9 | 81.3 | 94.7 | † |
| Vermont | † | † | † | † | † | † |
| Massachusetts | 28.0 | 9.5 | 24.6 | 52.2 | 90.0 | 102.8 |
| Rhode Island | 29.2 | † | 28.1 | 61.7 | 66.3 | † |
| Connecticut | 29.9 | 8.3 | 26.3 | 57.0 | 100.7 | 135.8 |
| Middle Atlantic | 31.2 | 10.2 | 28.1 | 59.6 | 95.4 | 115.3 |
| New York | 32.6 | 10.3 | 30.6 | 60.9 | 99.0 | 126.6 |
| New Jersey | 32.6 | 11.4 | 27.3 | 63.1 | 101.6 | 125.5 |
| Pennsylvania | 28.4 | 9.3 | 25.1 | 55.9 | 86.6 | 93.1 |
| East North Central | 28.7 | 9.3 | 26.6 | 54.8 | 85.9 | 99.6 |
| Ohio | 28.8 | 9.0 | 27.6 | 56.1 | 81.8 | 96.6 |
| Indiana | 27.4 | 9.4 | 23.5 | 52.3 | 89.5 | 86.0 |
| Illinois | 29.7 | 9.9 | 29.1 | 56.3 | 81.5 | 102.9 |
| Michigan | 28.6 | 9.5 | 25.1 | 54.8 | 90.0 | 105.4 |
| Wisconsin | 27.2 | 7.5 | 24.6 | 51.4 | 93.0 | 102.5 |
| West North Central | 27.5 | 8.2 | 24.3 | 53.5 | 88.9 | 102.1 |
| Minnesota | 26.3 | 6.7 | 23.3 | 51.6 | 91.2 | 98.1 |
| Iowa | 25.1 | 8.3 | 21.2 | 48.8 | 75.8 | 117.0 |
| Missouri | 26.7 | 7.1 | 25.8 | 50.7 | 88.2 | 80.8 |
| North Dakota | 35.9 | † | 29.5 | 72.6 | 120.0 | † |
| South Dakota | 32.0 | † | 22.0 | 69.5 | 94.5 | † |
| Nebraska | 31.5 | 12.6 | 26.4 | 62.8 | 86.4 | 89.9 |
| Kansas | 27.7 | 8.3 | 24.2 | 51.6 | 94.1 | 124.2 |
| South Atlantic | 29.4 | 9.6 | 28.7 | 54.7 | 87.2 | 91.2 |
| Delaware | † | † | † | † | † | † |
| Maryland | 29.2 | 11.0 | 26.4 | 52.6 | 95.0 | † |
| District of Columbia | 38.3 | † | 39.5 | 79.9 | 111.6 | † |
| Virginia | 29.4 | 9.4 | 29.5 | 54.9 | 85.9 | 74.6 |
| West Virginia | 24.9 | 8.9 | 23.7 | 46.7 | 72.3 | † |
| North Carolina | 31.7 | 8.9 | 32.5 | 59.8 | 93.9 | 96.9 |
| South Carolina | 32.4 | 10.8 | 32.4 | 61.2 | 81.9 | 135.5 |
| Georgia | 29.2 | 9.0 | 30.0 | 54.1 | 79.2 | 122.1 |
| Florida | 28.3 | 9.6 | 26.3 | 52.4 | 87.5 | 90.7 |
| East South Central | 31.2 | 9.6 | 28.1 | 63.8 | 89.9 | 102.0 |
| Kentucky | 30.7 | 8.5 | 31.8 | 60.6 | 80.7 | 106.0 |
| Tennessee | 30.6 | 8.6 | 28.3 | 59.9 | 94.4 | 124.0 |
| Alabama | 30.9 | 10.3 | 22.7 | 67.1 | 100.3 | 76.8 |
| Mississippi | 33.7 | 12.3 | 31.1 | 70.0 | 80.4 | 92.3 |
| West South Central | 29.2 | 9.5 | 26.8 | 55.8 | 89.0 | 100.7 |
| Arkansas | 30.5 | 9.7 | 31.7 | 53.0 | 89.1 | 116.8 |
| Louisiana | 32.6 | 9.6 | 31.0 | 61.8 | 104.2 | 100.4 |
| Oklahoma | 26.6 | 9.0 | 25.8 | 48.4 | 79.9 | 87.5 |
| Texas | 28.7 | 9.5 | 24.9 | 56.5 | 87.2 | 100.5 |
| Mountain | 27.4 | 8.7 | 25.1 | 52.0 | 77.6 | 116.6 |
| Montana | 30.2 | † | 23.8 | 54.9 | 98.6 | † |
| Idaho | 26.4 | † | 27.8 | 45.3 | 77.4 | † |
| Wyoming | † | † | † | † | † | † |
| Colorado | 26.9 | 8.2 | 26.9 | 47.3 | 85.5 | 95.6 |
| New Mexico | 28.5 | † | 24.7 | 62.3 | 73.5 | † |
| Arizona | 28.4 | 10.9 | 28.6 | 51.0 | 71.0 | 109.1 |
| Utah | 20.3 | † | 17.4 | 53.3 | 44.0 | † |
| Nevada | 33.2 | † | 29.0 | 58.4 | 112.3 | † |
| Pacific | 28.0 | 8.6 | 25.2 | 55.2 | 86.1 | 92.3 |
| Washington | 26.4 | 6.5 | 25.1 | 50.4 | 86.6 | 115.8 |
| Oregon | 28.6 | 8.4 | 24.0 | 60.2 | 87.2 | 101.6 |
| California | 28.4 | 8.9 | 25.6 | 56.6 | 86.1 | 85.0 |
| Alaska | † | † | † | † | † | † |
| Hawaii | 23.4 | † | 26.0 | 34.1 | 70.2 | † |

*Adjusted on basis of age distribution of the U.S. total population, 1940

†Fewer than 100 deaths for all ages and/or fewer than 20 deaths per age group; rate not computed

Source of basic data: Mortality data from Division of Vital Statistics, National Center for Health Statistics

Rates computed in Health and Safety Education Division of the Metropolitan Life Insurance Company

# Table 2—Mortality From Cancer of the Pancreas Among Women Aged 45 and Over United States, 1979–81

| | Death Rate per 100,000 | | | | | |
|---|---|---|---|---|---|---|
| **Area** | **Ages 45 & Over*** | **Ages 45–54** | **Ages 55–64** | **Ages 65–74** | **Ages 75–84** | **Ages 85 & Over** |
| UNITED STATES | 19.0 | 5.5 | 16.7 | 36.6 | 62.9 | 81.4 |
| New England | 19.3 | 5.5 | 15.6 | 38.6 | 66.7 | 80.7 |
| Maine | 18.4 | † | 15.8 | 35.2 | 67.4 | 85.5 |
| New Hampshire | 19.4 | † | † | 47.4 | 83.9 | † |
| Vermont | † | † | † | † | † | † |
| Massachusetts | 19.4 | 5.3 | 15.1 | 40.1 | 67.8 | 78.1 |
| Rhode Island | 17.5 | † | 15.3 | 31.7 | 50.4 | 92.9 |
| Connecticut | 20.2 | 6.1 | 17.7 | 38.2 | 68.0 | 83.9 |
| Middle Atlantic | 20.4 | 5.6 | 17.3 | 40.0 | 70.3 | 87.7 |
| New York | 21.6 | 6.2 | 18.3 | 41.9 | 72.8 | 96.8 |
| New Jersey | 20.6 | 5.0 | 17.8 | 39.5 | 77.1 | 83.0 |
| Pennsylvania | 18.7 | 5.2 | 15.7 | 37.7 | 62.8 | 77.0 |
| East North Central | 18.9 | 5.5 | 17.0 | 36.4 | 61.3 | 76.9 |
| Ohio | 18.9 | 4.6 | 17.4 | 38.0 | 61.6 | 68.0 |
| Indiana | 17.1 | 6.0 | 15.3 | 33.2 | 47.7 | 70.1 |
| Illinois | 20.2 | 5.9 | 17.8 | 38.6 | 65.6 | 90.9 |
| Michigan | 18.9 | 6.0 | 17.9 | 33.1 | 62.8 | 78.1 |
| Wisconsin | 18.3 | 5.5 | 14.6 | 36.4 | 63.1 | 70.0 |
| West North Central | 17.1 | 4.5 | 15.3 | 32.7 | 57.1 | 79.0 |
| Minnesota | 17.2 | † | 16.4 | 33.1 | 60.4 | 82.9 |
| Iowa | 16.0 | † | 13.4 | 30.0 | 57.0 | 91.9 |
| Missouri | 16.8 | 5.2 | 14.7 | 31.6 | 54.5 | 73.0 |
| North Dakota | † | † | † | † | † | † |
| South Dakota | † | † | † | † | † | † |
| Nebraska | 19.2 | † | 18.3 | 35.1 | 66.8 | 67.4 |
| Kansas | 16.5 | † | 14.9 | 32.4 | 53.0 | 67.4 |
| South Atlantic | 18.7 | 5.4 | 17.6 | 34.8 | 60.4 | 76.3 |
| Delaware | † | † | † | † | † | † |
| Maryland | 20.7 | 6.1 | 20.1 | 39.4 | 60.4 | 80.2 |
| District of Columbia | 29.0 | † | 21.5 | 59.8 | 87.3 | 156.6 |
| Virginia | 18.6 | 5.1 | 16.9 | 34.7 | 63.6 | 81.3 |
| West Virginia | 12.1 | † | 11.3 | 19.0 | 44.0 | 64.5 |
| North Carolina | 18.4 | 5.5 | 17.8 | 32.4 | 60.8 | 75.5 |
| South Carolina | 18.3 | 5.1 | 16.1 | 35.0 | 63.5 | 70.8 |
| Georgia | 18.9 | 4.7 | 19.2 | 34.6 | 62.0 | 66.0 |
| Florida | 19.0 | 5.4 | 17.4 | 36.9 | 59.8 | 76.2 |
| East South Central | 18.2 | 5.6 | 15.2 | 36.6 | 55.9 | [illegible] |
| Kentucky | 19.4 | 5.6 | 16.6 | 37.7 | 66.3 | 74.5 |
| Tennessee | 16.1 | 5.3 | 12.8 | 32.0 | 50.4 | 83.3 |
| Alabama | 19.0 | 5.7 | 17.3 | 37.9 | 52.2 | 92.9 |
| Mississippi | 19.2 | 5.7 | 14.7 | 41.7 | 56.4 | 100.5 |
| West South Central | 18.5 | 5.6 | 16.9 | 33.8 | 60.3 | 85.2 |
| Arkansas | 19.6 | 7.3 | 16.3 | 33.9 | 65.2 | 100.6 |
| Louisiana | 20.5 | 6.5 | 19.8 | 37.8 | 59.1 | 94.2 |
| Oklahoma | 17.5 | † | 18.1 | 31.1 | 59.2 | 83.0 |
| Texas | 18.0 | 5.5 | 15.8 | 33.3 | 60.0 | 80.1 |
| Mountain | 17.2 | 5.3 | 14.7 | 32.8 | 55.7 | 77.8 |
| Montana | † | † | † | † | † | † |
| Idaho | † | † | † | † | † | † |
| Wyoming | † | † | † | † | † | † |
| Colorado | 16.5 | 5.6 | 12.9 | 31.3 | 55.1 | 84.1 |
| New Mexico | 17.9 | † | 19.1 | 37.0 | 48.5 | † |
| Arizona | 18.2 | 7.2 | 15.7 | 33.6 | 53.5 | 72.6 |
| Utah | 16.4 | † | 14.3 | 28.7 | 52.6 | † |
| Nevada | † | † | † | † | † | † |
| Pacific | 20.1 | 5.6 | 17.1 | 40.0 | 67.2 | 83.5 |
| Washington | 20.2 | 5.9 | 15.5 | 43.6 | 63.6 | 86.8 |
| Oregon | 18.9 | † | 17.0 | 39.1 | 61.5 | 66.4 |
| California | 20.3 | 5.7 | 17.5 | 39.7 | 68.6 | 84.4 |
| Alaska | † | † | † | † | † | † |
| Hawaii | † | † | † | † | † | † |

*Adjusted on basis of age distribution of the U S total population, 1940

†Fewer than 100 deaths for all ages and/or fewer than 20 deaths per age group, rate not computed

Source of basic data: Mortality data from Division of Vital Statistics, National Center for Health Statistics

Rates computed in Health and Safety Education Division of the Metropolitan Life Insurance Company which fewer than a total of 100 deaths occurred over this period are excluded from analysis.

## Variation in Rates by Sex

Mortality rates from pancreatic cancer are higher for males than females in each age group and in each geographic area (Tables 1 and 2). The age-adjusted death rate for all men aged 45 and over was 54 percent higher than that for women. The difference in mortality rates between the sexes decreased with each successive age group. The largest differential in mortality was found among the 45–54 year olds, where the rate for men was 69 percent higher than that for women. The difference dropped to 26 percent between men and women 85 years old and older. As with most malignant neoplasms, mortality rates increased with age, ranging from 9.3 per 100,000 for men 45–54 to 102.8 for men 85 and over. A similar (though slightly more exaggerated) increase in mortality was seen among women—the rates rose 15-fold from 5.5 for women 45–54 to 81.4 per 100,000 for women 85 and over. The largest increase in rates was seen between the ages 45–54 and 55–64 for both sexes, where the rates almost tripled for men and more than tripled for women. The rate of increase slowed with each succeeding age group thereafter.

The death rate from pancreatic cancer for all men aged 45 and over was 54 percent higher than that for women.

## Regional Variation in Mortality

Five geographic areas reported pancreatic cancer death rates for men at or above the total for the United States; rates for women were higher than the average in only three areas. The Middle Atlantic and the East South Central areas led in mortality for men with identical rates, 31.2 per 100,000 or 7 percent above the national average. The Middle Atlantic area also led in death rates for women with a rate of 20.4, which was also 7 percent over the average. The Pacific area reported the second highest pancreas cancer mortality for women (20.1 per 100,000 or 6 percent above the average). The West North Central and Mountain states ranked eighth and ninth for men, with death rates 6 percent lower than the norm; these two areas ranked ninth and eighth, respectively, for women with rates 10 and 9 percent lower than the U.S. total. Considerable variation in the distribution of mortality rates was evident between the sexes for the remaining geographic areas.

Mortality rates from pancreatic cancer differ by as much as 89 percent between states.

## Variation in Rates by State

Mortality rates differed by as much as 89 percent between states (Figure, page 31). Among men 45 and over, the rate reported in the District of Columbia (38.3 per 100,000) was 31 percent above the total for the United States and 89 percent higher than the lowest rate reported, which was in Utah (20.3 per 100,000). North Dakota reported the second highest rate (23 percent above the average) followed by New Hampshire, Maine and Mississippi, with rates between 18 and 15 percent higher than the average. Filling out the top 10 in pancreas cancer mortality for men 45 and over were Nevada, New York, New Jersey, Louisiana and South Carolina, all 10 percent or more above the norm.

The lowest death rates for all men were reported in Utah and Hawaii.

After Utah, the second lowest rate for all men in this study was reported in Hawaii, where pancreatic cancer mortality was 20 percent below the total for the country. West Virginia, Iowa, Minnesota, Idaho and Washington reported the next lowest mortality with rates between 15 and 10 percent lower than the U.S. total.

For women 45 and over, mortality rates from pancreatic cancer differed by 140 percent ranging from 29.0 per 100,000 in the District of Columbia to 12.1 in West Virginia. The high rate in the District of Columbia was 53 percent above the average for women in the United States and was almost identical to the national rate reported for men 45 and over. New York reported the second highest mortality rate for women with a rate 14 percent above the average. These two highest rates for women were followed by those in Maryland, New Jersey, Louisiana, California, Washington, Illinois and Connecticut where mortality was between 20.7 and 20.2 per 100,000, which averaged between 9 and 6 percent above the norm.

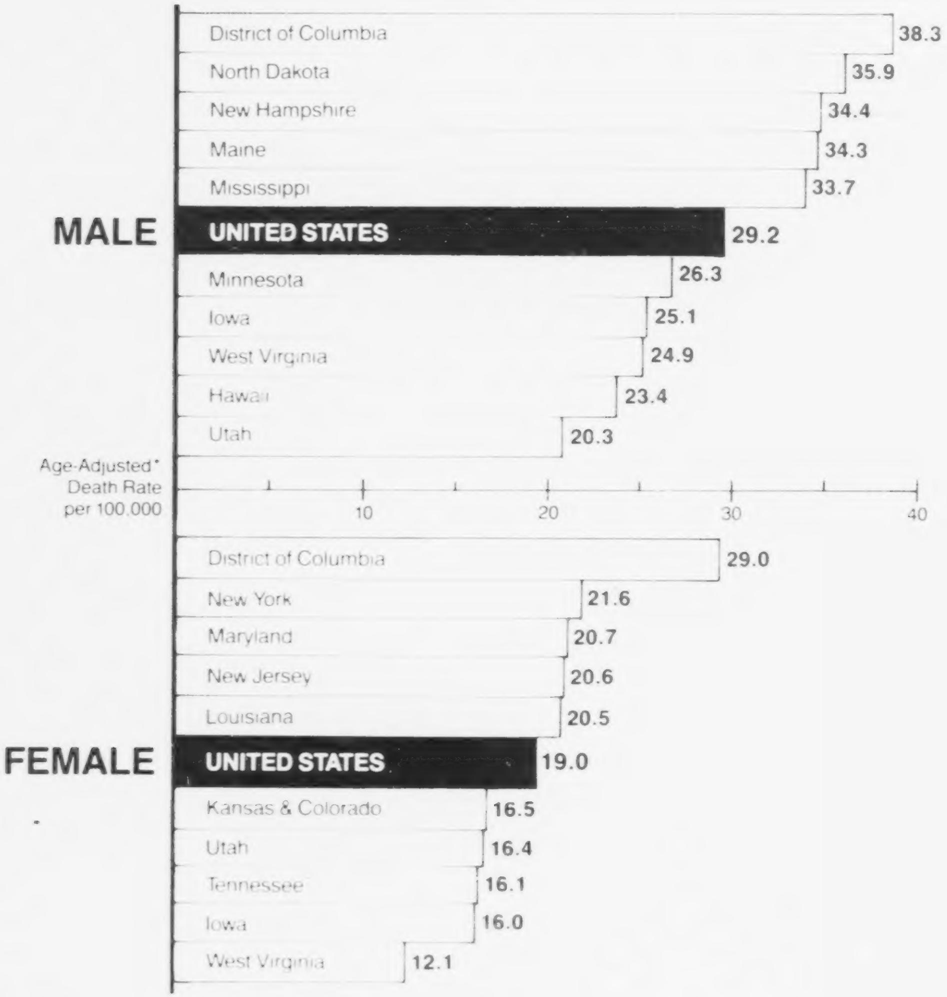
For women, the lowest death rates were reported in West Virginia and Iowa.

Iowa had the second lowest female pancreas cancer mortality with a rate 16 percent below the average for women 45 and over. The rate in Tennessee was the third lowest (15 percent below the average) and was followed by the rates in Utah, Colorado, Kansas, Missouri and Indiana with rates ranging between 14 and 10 percent lower than the total.

As is apparent from the data in Tables 1 and 2, there was no particular geographic

[illegible]

## States With Highest and Lowest Mortality From Pancreatic Cancer, Population Aged 45 and Over, by Sex United States, 1979–81



*Adjusted on basis of age distribution of the U.S. total population, 1940.
Source of data: Tables 1 and 2.

pattern in the distribution of pancreatic cancer mortality by age for either sex. The rates of this disease seem to be largely a function of age and continue to be higher among men than women. Although Utah has its share of the elderly, the low pancreas cancer mortality rates seen there, particularly among men, adds to the indictment of cigarette smoking in the etiology of this disease. Further suggestive evidence comes from recent data from the National Cancer Institute (NCI) SEER* program. The NCI data indicate that between 1974 and 1983 pancreas cancer incidence rates increased 5.3 percent among white women and 1.1 percent among black men; the rates have decreased 8.5 percent among white men and 1.4 percent among black women. Reports indicate that cigarette smoking has been declining among white men whereas white women and minorities continue to initiate the habit and seem to be quitting at a slower pace. These facts may help explain the increasing rates of pancreas cancer in certain segments of the population.

It is obvious that much work remains in the fight against pancreatic cancer and in the understanding of its complex etiology. It seems clear that certain steps can be taken that might help decrease the incidence of this rapidly progressing disease. Control of worksite exposures and increased attention to nutrition should be advocated. Along with these efforts, however, smoking cessation programs and campaigns should be increased in an effort to bring down the rates of this disease.

## References

[1] Brody J.E. Pancreatic cancer: Cigarette smoking is strongest link to deadly disease. *The New York Times, Science Times*, March 25, 1986.

[2] American Cancer Society. *1986 Cancer Facts and Figures.* New York: American Cancer Society, 1986.

[3] *Clinical Oncology: A Multidisciplinary Approach.* P. Rubin (ed.) New York: American Cancer Society, 1983.

[4] Gold E.B., Gordis L., Diener M.D., Seltser R., Boitnott J.K., Bynum T.E., Hutcheon D.F. Diet and other risk factors for cancer of the pancreas. *Cancer* 55(2):460-467, 1985.

[5] O'Connor T.P., Roebuck B.D., Peterson F., Campbell T.C. Effect of dietary intake of fish oil and fish protein on the development of L-Azaserine-induced preneoplastic lesions in the rat pancreas. *JNCI* 75(5):959-962, 1985.

[6] *The Book of Health.* E.L. Wynder (ed.). New York: Franklin Watts, 1981, p. 253.

[7] Sondik E., Young J.L., Horm J.W., Ries L.A.G. *1985 Annual Cancer Statistics Review (ACSR).* Bethesda, Md.: National Cancer Institute, 1985.

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*SEER = Surveillance, Epidemiology and End Results

# STATISTICAL INFORMATION, PLEASE

Questions frequently come to SB that we would like to share with our readers. This new feature column will attempt to answer as many of your statistically oriented questions as space permits. We hope you will enjoy this new feature and will participate by sending us your queries.

**Q** *How do the current leading causes of death compare with those at the beginning of the century?*

**A** There have been significant changes in the leading causes of death in the United States since the beginning of the century. Today heart disease is the No. 1 killer, followed by cancer, cerebrovascular disease (stroke), accidents, and the chronic obstructive pulmonary diseases (bronchitis, emphysema and asthma). By comparison, in 1900 pneumonia and influenza had the dubious distinction of being the main cause of death. Next in rank order were tuberculosis and diarrheal diseases. Diseases of the heart were in fourth place followed by stroke. Mortality from cancer was the eighth leading cause of death.

* * * * * * * * * * * * * * * * * * * * * * * *

**Q** *Excluding motor vehicle accidents, where do most fatal accidents occur and what are the most common causes?*

**A** Most fatal accidents occur in the home. Falls cause most home fatalities followed by deaths associated with fires and then poisonings (solid and liquids). Suffocation-ingested deaths are next in rank order and then firearms.

* * * * * * * * * * * * * * * * * * * * * * * *

**Q** *What is the sex ratio at birth?*

**A** More boys are born each year than girls. In 1983—the latest year for which final data are available—1,052 boys were born for every 1,000 girls. This ratio does not fluctuate widely.

* * * * * * * * * * * * * * * * * * * * * * * *

**Q** *What are the current chances of surviving to age 65? How have they improved since the turn of the century?*

**A** According to provisional 1985 U.S. life tables calculated by Met Life, about 790 out of every 1,000 Americans can expect to survive to age 65. Among men the chances are about 730 in 1,000 and for women 840 in 1,000. The current likelihood of reaching age 65 is a remarkable improvement over the chances at the turn of the century. During 1900-02 only 409 in every 1,000 persons could look forward to attaining age 65—for men the figure was 387 in 1,000 and for women 432 in 1,000.

* * * * * * * * * * * * * * * * * * * * * * * *

Please send your questions to: Statistical Information Editor
Health and Safety Education Division, Dept. SB
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New York, N.Y. 10010-3690

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45 YEARS AGO

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Metropolitan Life
AND AFFILIATED COMPANIES

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# From The Editor's Desk

Have you ever considered your chances of living to age 100? They may not be as remote as you think, according to *SB's* lead article. The estimated number of centenarians is rising so rapidly that, by 2025, there will be a sixteenfold expected increase in the United States—from the present 25,000 to 400,000. With growth like that, one can imagine a whole new industry emerging: "Centenarian Celebrations, Inc."

## Centenarian Population: Future Implications

On the serious side, there may be significant planning implications for the Social Security system, pension funds, and annuity payouts. Without such planning, for instance, there may be woes ahead for the fund manager who has a disproportionate share of future centenarians among his or her clients.

In the Commentary "Dramatic Growth of Centenarian Population," Gregory Spencer of the U.S. Census Bureau explains very neatly the statistical logic behind the methods of these estimates. Were you unfamiliar with these procedures, it should greatly increase your confidence in them.

After retirement, should you want lengthy relationships with fellow retirees, where would be the most desirable place to live? It could be right where you live now, or it could be elsewhere. If such questions are on your mind, we have information for you in our article "Trends in Longevity After Age 65."

## How Much Fat in Diet for Children?

Mothers, does your pediatrician seem vague about the right fat and cholesterol content for your child's diet? If so, there's good reason. Read "Capsule Briefs" in this issue to find how much disparity exists between an American Academy of Pediatrics "expert committee" and a research group's recommendations.

## Alcohol Use and Abuse: U.S.A.

Did you know that in the 1980s, about 10 percent of the U.S. population consumed an estimated 50 percent of the alcohol in the country? And are you aware which state has the highest per capita consumption of alcohol? If answers to questions like these have importance for you, consider reading *SB's* article on alcohol use in the United States. It's packed with eye-opening information on this most widely used and abused mood-altering drug.

## Variations in Motor Vehicle Deaths

If you have an interstate car trip scheduled soon, you may find useful our article on regional variations in motor vehicle mortality. The difference between states at the extremes seems so substantial that all citizens and drivers alike should give findings like these more attention.

And if you wonder how the terms "life expectancy" and "life span" differ, check "Statistical Information, Please." It's a frequently asked question about a central demographic concept.

On that informative note, I wish you good reading.

Charles B Arnold

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*The Statistical Bulletin will publish comment and criticism from readers about its contents. Alternate interpretations of data analyses or different points of view about subjects are particularly welcome. Use address at end of publisher's statement, opposite page.*

# Profile of Centenarians

The celebration of a hundredth birthday is an event roundly heralded by family members, and often by the media as well. In 1985 there were more than 25,000 of these centenarian parties—a two-thirds increase from the number just five years earlier. Moreover, projections by the Bureau of Census indicate that the count of persons in this age category will increase very rapidly. For example, by 1990 there are likely to be more than 50,000 centenarians—double their current total. The marked growth of the very old is forecast to continue, with their number reaching 100,000 in 2000, over 400,000 by 2025 and around 1,000,000 in 2050.

Potential celebrants of the milestone birthday have long been known to exaggerate their ages. The temptation to yield to this understandable urge occurs most frequently among illiterate persons, those who live in remote areas of the world and in countries lacking adequate birth registration systems. Nonetheless, the number of verified centenarians has been rapidly increasing.

## Tendency to Overreport

In the United States, the decennial censuses (a self enumeration count of population) historically have reported greatly overstated numbers of very old people. For example, in the April 1960 census, there were reported to be 10,326 persons aged 100 or over—328 percent more than the expected count based on life tables probabilities. R. J. Myers, using a similar analytical approach, estimated that there were more likely 3,700 centenarians in 1960. This total was essentially confirmed by J. S. Siegal's and J. S. Passel's study, which concluded that there were probably 3,300 centenarians at that time. Additionally, they believe that, although the 1970 census reported over 106,000 people aged 100 or over, the preferred count should be 4,800. A decade later, the 1980 decennial census reported 32,194 centenarians, although further analysis reduced the number to around 24,000, and a demographic expert modified the number to 15,000. The Social Security Administration's estimates for 1980 closely agree with this figure—their total being 15,258 persons aged 100 or over. In 1985 the number of centenarian beneficiaries on the Social Security roles totaled 25,355. Table 1 presents a summary of the best available estimates of the number of centenarians from 1940 to date.

> The U.S. decennial censuses historically have reported greatly overstated numbers of very old people.

## Who Has Lived Longer?

It is always of interest to ascertain who was the longest lived human. Many claims have been made for this honor but the distinction appears to belong to Shigechiyo Izumi of Japan. Mr. Izumi passed away early last year, and according to tabulations in Japan's first census of 1871, was born on June 29, 1865; thus, he was more than 120 years at the time of his death. There have been other reported instances of long life. However, adequate birth registrations are not available to document their authenticity.

A review of the literature on centenarians reveals that there is no fountain of youth, no elixir, no natural nutrient, no hidden valley and no isolated geographic area that promotes extended lifetime. In the United States there is no verified record of anyone attaining age 114.

*David Johnson*

The national record for longevity belongs to Mrs. Fannie Thomas, who was born April 24, 1867, and died on January 22, 1981. She was nearly 114 years of age. A Canadian—Pierre Joubert—lived almost as long. Irrefutable proof of his birth and death indicates that he lived just about five months less than Mrs. Thomas. The claims of large numbers of centenarians in the

The national record for longevity belongs to Mrs. Fannie Thomas, who was born on April 24, 1867, and died on January 22, 1981—nearly 114 years old.

Caucasus region of the Soviet Union have been found to be unsupported. Similarly, analyses of extended age in the remote areas of other countries have been found to be unverifiable.

## The Chances of Reaching 100

The chances of living long enough to become a centenarian are indeed very small but are not insignificant. In the United States the mortality analysis presented in the 1979–81 decennial life tables indicates that 1,150 persons in 100,000 would survive from birth to age 100. The likelihood was markedly greater for women than men—nearly 1,927 per 100,000 versus 423.

> The U.S. mortality analysis presented in the 1979–81 decennial life tables indicates that 1,150 persons in 100,000 could survive from birth to 100.

The chances of reaching the century mark have increased susbstantially since 1900–02. At that time just 22 in 100,000 men could be expected to attain age 100, while among women the figure was 43 in 100,000. Table 2 and the accompanying figure present, by sex, the trend and chances of reaching 100. It should be pointed out that the National Center for Health Statistics developed alternate procedures for determining life table values at the advanced ages. Mortality rates are

**Table 1—Estimated Number of Centenarians United States, 1940 to 1985**

| | Bureau of the Census | | | Social Security Administration Records |
|---|---|---|---|---|
| | Reported in Census | Adjusted | | |
| Year | | A | B | |
| 1940 | 3,679 | 1,000 | | 66 plus |
| 1950 | 4,447 | 1,700 | 2,300 | |
| 1960 | 10,326 | 3,700 | 3,300 | |
| 1970 | 106,441 | | 4,800 | 4,574 |
| 1980 | 32,194 | 15,000 | | 15,258 |
| 1985 | | | | 25,355 |

Source: Abstracted from various reports and papers

Analysis of the state life tables for 1979–81 reveals that there are significant geographic variations in the likelihood of becoming a centenarian.

normally calculated by incorporating census data and reported deaths, however, for ages 95 and over, the data were considered scanty and unreliable. Therefore, the Medicare program records for these ages were utilized.

Analysis of the state life tables for 1979–81 reveals that there are significant geographic variations in the likelihood of becoming a centenarian. In Hawaii, the chances of celebrating a hundredth birthday were 1,713 in 100,000, or nearly twice the expectation in Alaska (941 in 100,000). The probabilities were also less than one in 100 in the District of Columbia and Louisiana. On the other hand, the values were comparatively high in Minnesota, closely followed by that of South Dakota. Table 3 shows the 10 states where the chances of becoming a centenarian were highest or lowest during 1979–81 and 1969–71.

A comprehensive examination of a sample of the 1980 census file pertaining to centenarians disclosed multiple discrepancies from reported data. Not only did the study confirm the widespread misrepresentation of age, but the "social

### Table 2—Chances per 100,000 of Surviving From Birth to Age 100, by Sex United States, 1900–02 to 1979–81

| Year | Both Sexes | Men | Women |
|---|---|---|---|
| 1900–02 | 31 | 22 | 43 |
| 1909–11 | 40 | 33 | 49 |
| 1919–21* | NA | 61 | 63 |
| 1929–31* | NA | 40 | 74 |
| 1939–41 | 123 | 78 | 179 |
| 1949–51 | 199 | 121 | 298 |
| 1959–61 | 183 | 117 | 264 |
| 1969–71 | 542 | 222 | 954 |
| 1979–81 | 1,150 | 423 | 1,927 |

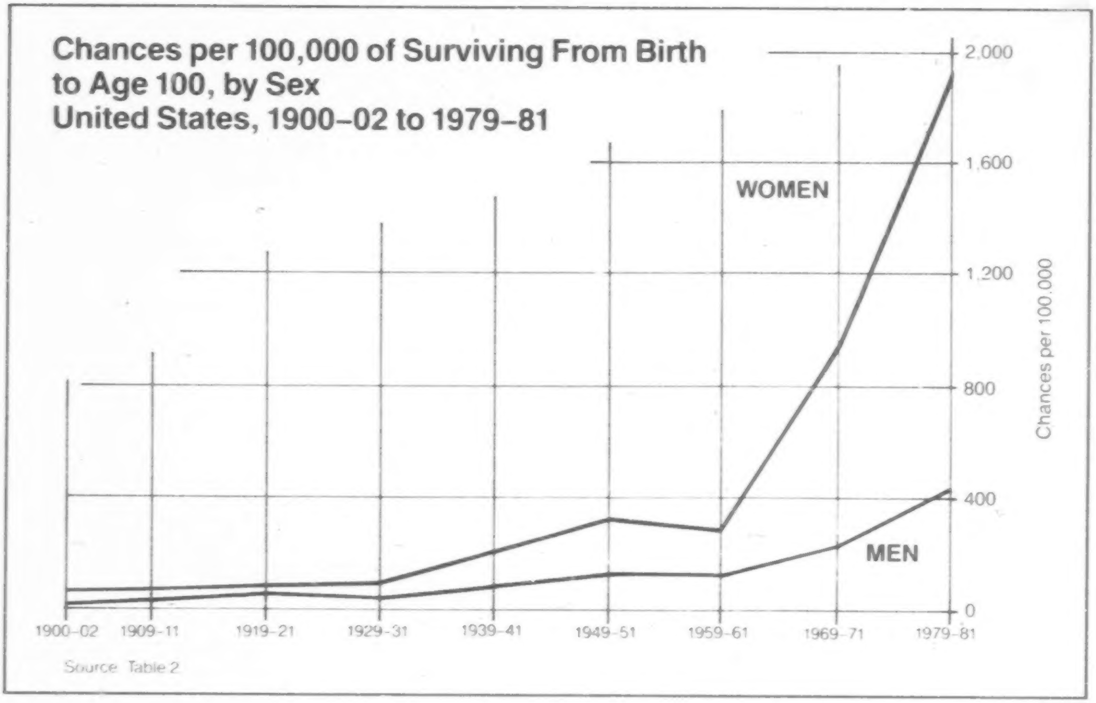
*White population only.

Source: Various reports by the Bureau of the Census and the National Center for Health Statistics.

## Table 3—Ten States With Best and Least Favorable Chances of Surviving From Birth to Age 100 United States, 1969–71 and 1979–81

| | 1969–71 | | 1979–81 | |
|---|---|---|---|---|
| **BEST** | State | Chances per 100,000 | State | Chances per 100,000 |
| 1 | Hawaii | 794 | Hawaii | 1713 |
| 2 | Florida | 698 | Minnesota | 1444 |
| 3 | Alaska | 662 | South Dakota | 1392 |
| 4 | Utah | 660 | Iowa | 1379 |
| 5 | Minnesota | 659 | Nebraska | 1364 |
| 6 | North Dakota | 651 | North Dakota | 1362 |
| 7 | Nebraska | 649 | Kansas | 1339 |
| 8 | Oregon | 647 | Florida | 1336 |
| 9 | Kansas | 640 | Idaho | 1329 |
| 10 | South Dakota | 640 | Arizona | 1317 |
| | **UNITED STATES** | **542** | **UNITED STATES** | **1150** |
| **LEAST** | | | | |
| 1 | Nevada | 444 | Alaska | 941 |
| 2 | West Virginia | 452 | Dist. of Columbia | 948 |
| 3 | Pennsylvania | 455 | Louisiana | 994 |
| 4 | Dist. of Columbia | 456 | Nevada | 1004 |
| 5 | Mississippi | 462 | Pennsylvania | 1009 |
| 6 | Delaware | 465 | West Virginia | 1012 |
| 7 | Kentucky | 473 | Kentucky | 1018 |
| 8 | Illinois | 481 | Mississippi | 1033 |
| 9 | New York | 482 | Ohio | 1043 |
| 10 | Ohio | 482 | New Jersey | 1044 |

Source: National Center for Health Statistics, U.S. Decennial State Life Tables for 1969–71 and 1979–81



**Chances per 100,000 of Surviving From Birth to Age 100, by Sex United States, 1900–02 to 1979–81**

Source: Table 2

characteristics of centenarians may be considerably different from those presented in census results." For example, the analysis found that centenarians were much more likely to reside in group quarters than to be the head of a household. With regard to marital status, only 7 percent of the studied centenarians were still married compared to the 27 percent reported.

Some of the problems with the census results most likely originated with the questionnaire. Therefore, it is clear that the self-enumeration data for persons at advanced ages should only be considered tentative. A redesigned questionnaire could alleviate some of the difficulties and yield different demographic characteristics for the centenarian population. □

## References

Bowerman, W.G. "Centenarians." Trans Act Soc Amer 40 360–78, 1939.
Shryock, H.S., Siegal, J.S., et al. "The Methods and Materials of Demography." I 228, 1973.
Myers, R.J. "Validity of centenarian data in the 1960 census." *Demography* 3(2) 470–6, 1966.
Siegal, J.S. and Passell, J.S. "New estimates of the number of centenarians in the United States." *JASA* 71 355, 539–46, 1976.
Spencer, G. "The characteristics of centenarians in the 1980 census—unpublished." Paper presented at the April 1986 meetings of the Population Association of America in San Francisco, Calif.
Personal communication with Philip Lerner, Social Security Administration, Sept. 3, 1986.
1986 Guinness Book of World Records. "Longevity," pp. 14–15, Sterling Publishing Co., Inc., New York.
Bennett, Neil G. and Garson, Lea K. "The Centenarian question and old-age mortality in the Soviet Union, 1959–1970." Demography 20(4) 587–606, 1983.
National Center for Health Statistics. United States Life Tables 1979–81. *U.S. Decennial Life Tables for 1979–81*, Vol. 1, No. 1, DHHS Pub. No. (PHS)85-1150-1, Aug. 1985.

# Commentary
## Dramatic Growth of Centenarian Population

Centenarians are a unique group and always invoke attention. The article "Profile of Centenarians," on page 2, is a clear summary of the current information on this important age category in America. This commentary focuses on the rapidity of increase in this population. The true magnitude of this change is often overshadowed by the tendency to focus on the problem of accurately measuring the present number of centenarians.

Let's begin by elaborating on two pieces of information in the Profile. First, the Social Security data in Table 1 (page 4) show that the centenarian population grew about 12 percent a year during the 1970s and about 10 percent a year during the first half of the 1980s. By comparison, the U.S. population aged 85 and over grew only 4.6 percent and 3.6 percent, respectively, during those same periods. This is an interesting comparison because the 85-and-over group, itself, is apparently growing at a remarkable rate. Second, the Profile mentions that, under current mortality conditions, 1,150 persons, in 100,000 would survive from birth to age 100. This compares with 31 per 100,000 in 1900–02. The fortyfold enhancement between these life table values is another indication of the potential for enormous future expansion of the centenarian population.

Some idea of the likely future growth of the centenarian population can be ascertained from the national projections of the Bureau of the Census. Table 1 indicates what the future centenarian population would be if fertility and net immigration stayed at middle assumption levels, but mortality followed the low, middle or high improvement scenarios. In the middle series, the centenarian population would

### Table 1—Projections of the Centenarian Population Under Alternative Mortality Scenarios
**(Numbers in Thousands)**

| | Assumed Amount of Mortality Improvement | | |
|---|---|---|---|
| **Date** | **Low** | **Middle** | **High** |
| 1990 | 51 | 54 | 57 |
| 2000 | 85 | 108 | 138 |
| 2025 | 228 | 441 | 857 |
| 2050 | 420 | 1,029 | 2,452 |
| 2080 | 586 | 1,870 | 5,560 |

Source: U.S. Bureau of the Census. *Current Population Reports*, *Series P-25, No. 952.*

quadruple by the year 2000, and would be 40 times its present size by 2050. Even in the low improvement series, the 100-and-over group would triple by 2000, and would be 16 times its present size by 2050. Such growth is extraordinarily rapid. *These projections are not derived from any extreme assumptions about future improvements in elderly mortality.* Quite the reverse is the case (Table 2, page 5). For example, life expectancy at age 100 in the low mortality improvement series would only increase 0.5 years between 1979–81 and 2005, and a total of only 1.1 years by 2080. In the middle series, the gains in life expectancy at age 100, during those same intervals, would be only 0.9 and 2.6 years, respectively.

Projections of the centenarian population are not dependent on the accuracy of current estimates. That is because the current centenarian population will mostly be gone within 10 years. They will be replaced by the survivors of younger age groups for whom we have reasonably good statistics.

In summary, the centenarian population is likely to increase dramatically in the coming decades. The implications of this growth may be dramatic for pension plans, social welfare programs, life insurance or annuity plans, and the like. ☐

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U.S. Bureau of the Census

## References

U.S. Bureau of the Census. *Current Population Reports, Series P-25, Nos. 985 and 917.*

Rosenwaike, I. "The extreme aged in America: a portrait of an expanding population." Westport, Conn.: Greenwood Press, 1985.

U.S. Bureau of Census. *Current Population Reports, Series P-25, No. 952.*

## Table 2—Life Expectancy at Age 100

|  | Assumed Amount of Mortality Improvement |  |  |
|---|---|---|---|
| **Date** | **Low** | **Middle** | **High** |
| 1979–81 | — | 2.7 | — |
| 2005 | 3.2 | 3.6 | 4.1 |
| 2080 | 3.8 | 5.3 | 8.0 |

Source: Same as Table 1.

# Trends in Longevity After Age 65

Since the beginning of the century, expectation of life in the United States at ages 65 and older has significantly increased, especially for women, although in recent years the longevity enhancements have slowed. In concert with the encouraging gains in average future lifetime, the chances for survival for an additional 20 years after age 65 have dramatically improved. Nonetheless, expectation of life at the older ages still varies appreciably from state to state.

In 1985, according to provisional life tables prepared by the Metropolitan Life Insurance Company, expectation of life at age 65 was 16.8 years nationwide, the same as the all-time high established in 1982. Among men, average remaining lifetime was 14.5 years—a fractional decline from the peak level of 14.6 years recorded in 1984. For women, the current value of 18.6 years represents the third consecutive year at this level and is 0.2 years less than the record high established in 1982. Analysis of longevity in prior periods reveals that during 1979–81 expectation of life at age 65 was 16.5 years for both sexes combined and was 14.2 years for men and 18.4 years for women. Two decades earlier the comparable values were 14.4 years, 13.0 years and 15.8 years, respectively. Moreover, during 1900–02, expected future lifetime at age 65 was just 11.9 years for both sexes, 11.5 years for men and 12.2 years for women. It may be ascertained from Table 1, which presents the trend in longevity from 1900–1985, that life expectancy at age 65 has risen by three years for men and by over six years for women, since the turn of the century.

Life expectancy at age 65 has risen by three years for men and by six years for women, since the turn of the century

Relative advances in expectation of life at age 85 were more dramatic. Between 1900–02 and 1985, the average number of additional years of life for men aged 85 rose by 32 percent—from 3.8 years to 5.0 years (it was 5.3 years in 1982). The corresponding increase for women was 59 percent, from 4.1 years to 6.5 years (in 1982 expectancy was 6.8 years).

The chances of surviving from age 65 to age 85 also increased markedly during the period under review. In 1985 the likelihood that a 65-year-old male would live another 20 years was a record high of 272 per 1,000, double the probability in 1900–02. Among women at this age, chances of surviving another two decades were 460 per 1,000 in 1985 compared with 163 per 1,000 in 1900–02, or nearly three times greater.

## National Longevity Trends

The improved national longevity experience was, with some rare exceptions, uniformly shared among the states. Analysis of the two most recent series of decennial state life tables reveals that expectation of life at age 65 increased in every geographic area between 1969–71 and 1979–81. Excluding Hawaii, for both men and women the range in state longevity differences narrowed from 2.0

years to 1.9 years. In Hawaii unusually large longevity gains were experienced—among women life expectancy increased by 2.2 years while the corresponding increase was 1.8 years among men.

During 1979–81, men and women aged 65 living in Hawaii had the most favorable longevity outlook.

During 1979–81, men and women aged 65 residing in Hawaii had the most favorable longevity outlook. For both sexes combined, the expectation of life for persons 65 years of age was 18.3 years. Next in rank order were the inhabitants of Minnesota and Florida—17.4 years. In 12 other states life expectancy at age 65 was 17.0 years or greater. On the other hand, persons aged 65 living in Alaska could only anticipate 15.7 years of additional life. Expectation of life was only fractionally higher in Louisiana, the District of Columbia and Pennsylvania—all with less than 16.0

## Table 1—Trend in Expectation of Life and Chances of Surviving Persons Aged 65 and 85 United States, 1900–02 to 1985

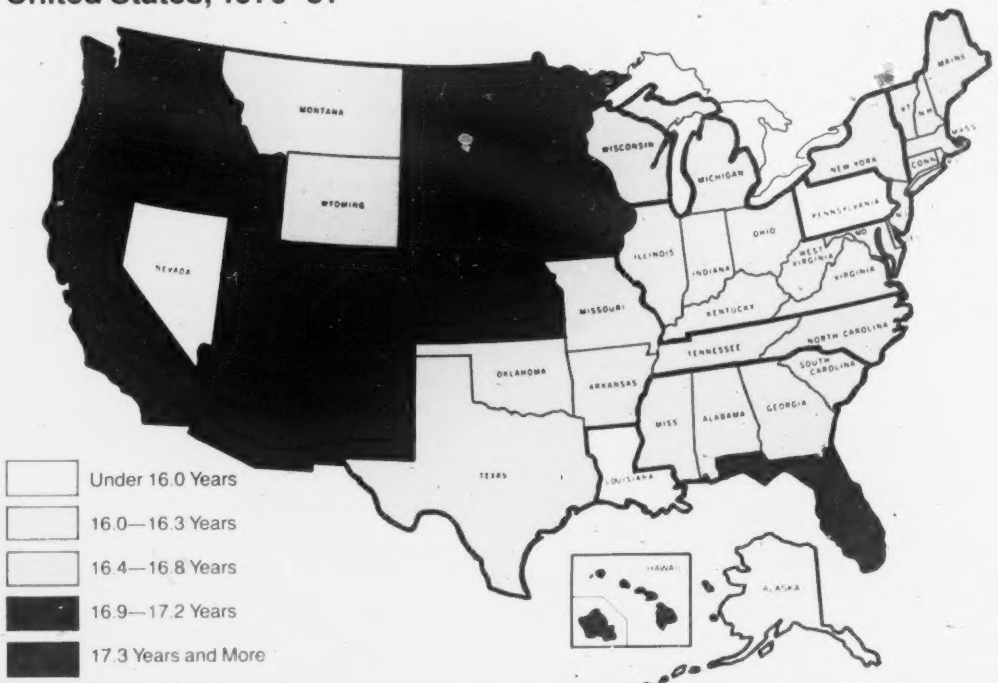
| | Expectation of Life (in Years) | | | | | | Chances per 1,000 of Surviving From Age 65 to Age 85 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Age 65 | | | Age 85 | | | | | |
| Year | Both Sexes | Men | Women | Both Sexes | Men | Women | Both Sexes | Men | Women |
| 1900–02 | 11.9 | 11.5 | 12.2 | 4.0 | 3.8 | 4.1 | 148 | 134 | 163 |
| 1909–11 | 11.6 | 11.2 | 12.0 | 4.0 | 3.9 | 4.1 | 139 | 126 | 152 |
| 1919–21* | NA | 12.2 | 12.7 | NA | 4.1 | 4.2 | NA | 161 | 182 |
| 1929–31* | NA | 11.8 | 12.8 | NA | 4.0 | 4.2 | NA | 143 | 181 |
| 1939–41 | 12.8 | 12.1 | 13.6 | 4.3 | 4.1 | 4.5 | 183 | 156 | 213 |
| 1949–51 | 13.8 | 12.7 | 15.0 | 4.7 | 4.4 | 4.9 | 234 | 191 | 279 |
| 1959–61 | 14.4 | 13.0 | 15.8 | 4.6 | 4.4 | 4.7 | 261 | 200 | 322 |
| 1969–71 | 15.0 | 13.0 | 16.8 | 5.3 | 4.7 | 5.6 | 291 | 205 | 371 |
| 1979–81 | 16.5 | 14.2 | 18.4 | 6.0 | 5.1 | 6.4 | 363 | 255 | 452 |
| 1982 | 16.8 | 14.5 | 18.8 | 6.3 | 5.3 | 6.8 | 378 | 271 | 467 |
| 1983 | 16.7 | 14.5 | 18.6 | 6.1 | 5.2 | 6.6 | 371 | 264 | 460 |
| 1984 | 16.8 | 14.6 | 18.6 | 6.1 | 5.2 | 6.5 | 374 | 268 | 461 |
| 1985† | 16.8 | 14.5 | 18.6 | 6.0 | 5.0 | 6.5 | 375 | 272 | 460 |

*White population only

†Estimated by Metropolitan Life Insurance Co.

Source: Various reports by the Bureau of the Census and the National Center for Health Statistics

**Figure A—Expectation of Life at Age 65, by State United States, 1979–81**


MONTANA
WYOMING
NEVADA
WISCONSIN
MICHIGAN
NEW YORK
VT
N.H.
MAINE
MASS
CONN
PENNSYLVANIA
ILLINOIS
INDIANA
OHIO
WEST VIRGINIA
MD
VIRGINIA
MISSOURI
KENTUCKY
NORTH CAROLINA
TENNESSEE
SOUTH CAROLINA
OKLAHOMA
ARKANSAS
MISS
ALABAMA
GEORGIA
TEXAS
LOUISIANA
HAWAII
ALASKA
Under 16.0 Years
16.0—16.3 Years
16.4—16.8 Years
16.9—17.2 Years
17.3 Years and More

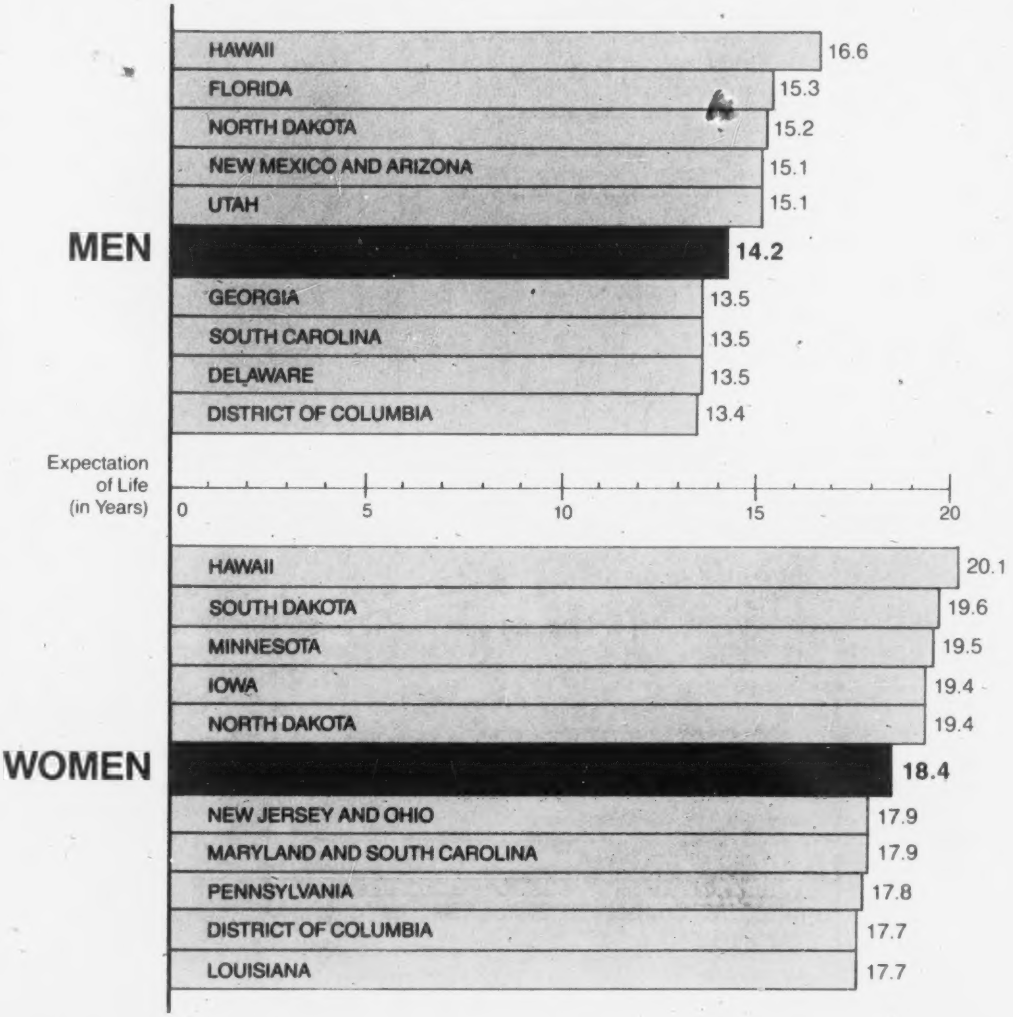
Source: Table 2

years of future lifetime. A glance at Figure A discloses the distribution of life expectancy at age 65 in the geographic areas of the United States. An analysis of younger ages was presented in a previous study.

## Geographic Variations by Sex

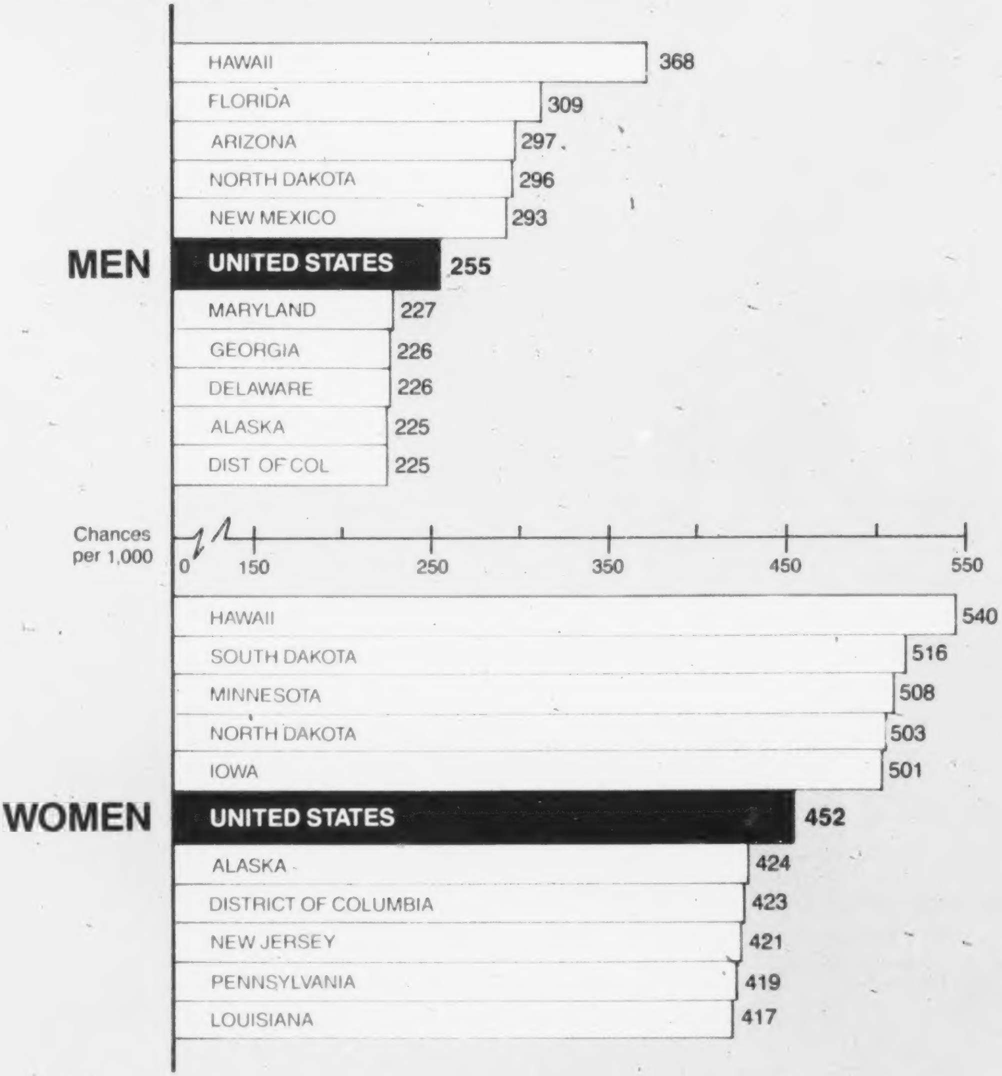
Examination of the geographic variations in life expectancy by sex reveals few surprises. Expectation of life at age 65 for both men and women was highest in Hawaii and lowest in the District of Columbia. The racial composition of the population dwelling in the areas was the main contributing factor for this outcome. Men residing in Florida and North Dakota, as well as those in New Mexico, Arizona, Utah, Idaho and Minnesota, experienced relatively high expectancy—15.0 years or better. Among women aged 65, average remaining lifetime was most favorable (after those living in Hawaii) in South Dakota, closely followed by that in Minnesota. In 11 other states, life expectancy was at least 19.0 years. The favorable outlook in the traditional retirement states has resulted, in part, from the influx over the years of healthy

Figure B—States With Highest and Lowest Expectation of Life at Age 65, by Sex United States, 1979–81



Source: Table 2

**Figure C—States With Highest and Lowest Chances of Surviving from Age 65 to 85, by Sex United States, 1979–81**



Source: Table 2.

individuals. In the remaining states, the explanation for propitious longevity is not so clearly understood, but it reflects, in general, racial, ethnic and religious attributes of the resident population. Figure B presents, by sex, the states with the highest and lowest average remaining lifetime in 1979-81.

With advance in age and passage of time, geographic variations have narrowed.

With advance in age and with the passage of time, geographic variations in longevity have narrowed. Between 1969-71 and 1979-81, anticipated future lifetime at age 85 increased in every state, with the sole exception of males in Alaska. As a result, in 1979-81, longevity disparities between states were comparatively small. For both elderly men and women, the gap between the state with the best outlook and the state with least favorable value was just around a half year. In Hawaii men could anticipate an additional 5.6 years of life while women could expect another 6.7 years. Women in South Dakota shared the best record with their counterparts in Hawaii.

The likelihood of surviving an additional 20 years from age 65 to 85 closely mirrors the pattern of life expectancy.

The likelihood of surviving an additional 20 years from age 65 to age 85 closely mirrors the pattern of life expectancy. Chance per 1,000 of achieving this goal were much higher for women than for men and were most favorable in Hawaii and generally least optimistic in Alaska and the District of Columbia. Among men aged 65, probabilities were comparatively low—below 230 in 1,000 in the District of Columbia, Alaska, Delaware, Georgia, Maryland, Pennsylvania and Louisiana. Relatively low survival chances were experienced by women in Louisiana, Pennsylvania, New Jersey, the District of Columbia and Alaska. On the brighter side, women aged 65 residing in Hawaii, South Dakota, Minnesota, North Dakota and Iowa had a better than 50-50 chance of celebrating an 85th birthday. The likelihood of reaching this milestone was not as great for men aged 85 but was more than 3 in 10 for those living in Hawaii and Florida. Figure C shows the five states with the best or poorest chances of survival to age 85, and Table 2 presents the complete data from which this analysis was drawn.

Women aged 65 living in Hawaii, South Dakota, Minnesota, North Dakota and Iowa had a better than 50-50 chance of celebrating an 85th birthday.

# Table 2—Expectation of Life and Chances of Surviving to Age 85, by State and
# Persons Aged 65 and 85
# United States, 1969–71 and 1979–81

| | Expectation of Life (in Years) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1969–71 | | | | | | 1979–81 | | | | | |
| | Age 65 | | | Age 85 | | | Age 65 | | | Age 85 | | |
| Geographic Area | Both Sexes | Men | Women | Both Sexes | Men | Women | Both Sexes | Men | Women | Both Sexes | Men | Wom |
| UNITED STATES | 15.0 | 13.0 | 16.8 | 5.3 | 4.7 | 5.6 | 16.5 | 14.2 | 18.4 | 6.0 | 5.1 | 6.4 |
| New England | | | | | | | | | | | | |
| Maine | 14.7 | 12.6 | 16.6 | 5.1 | 4.6 | 5.5 | 16.5 | 14.1 | 18.6 | 6.0 | 5.0 | 6.5 |
| New Hampshire | 14.7 | 12.6 | 16.7 | 5.3 | 4.7 | 5.6 | 16.6 | 14.2 | 18.6 | 6.0 | 5.0 | 6.4 |
| Vermont | 14.8 | 12.6 | 16.8 | 5.2 | 4.6 | 5.6 | 16.6 | 14.1 | 18.7 | 6.0 | 5.0 | 6.5 |
| Massachusetts | 15.1 | 12.8 | 16.9 | 5.3 | 4.7 | 5.6 | 16.7 | 14.2 | 18.5 | 6.0 | 5.1 | 6.4 |
| Rhode Island | 15.0 | 12.9 | 16.7 | 5.3 | 4.6 | 5.6 | 16.6 | 14.1 | 18.6 | 6.0 | 5.1 | 6.4 |
| Connecticut | 15.3 | 13.2 | 17.1 | 5.3 | 4.7 | 5.7 | 16.8 | 14.4 | 18.7 | 6.0 | 5.1 | 6.5 |
| Middle Atlantic | | | | | | | | | | | | |
| New York | 14.7 | 12.8 | 16.3 | 5.1 | 4.6 | 5.5 | 16.3 | 14.1 | 18.1 | 5.8 | 5.1 | 6.2 |
| New Jersey | 14.6 | 12.7 | 16.3 | 5.2 | 4.7 | 5.5 | 16.1 | 14.0 | 17.9 | 5.8 | 5.0 | 6.2 |
| Pennsylvania | 14.4 | 12.5 | 16.0 | 5.1 | 4.6 | 5.5 | 15.9 | 13.6 | 17.8 | 5.8 | 5.0 | 6.2 |
| East North Central | | | | | | | | | | | | |
| Ohio | 14.6 | 12.6 | 16.4 | 5.1 | 4.6 | 5.5 | 16.0 | 13.6 | 17.9 | 5.9 | 5.0 | 6.3 |
| Indiana | 14.7 | 12.7 | 16.6 | 5.2 | 4.6 | 5.6 | 16.2 | 13.8 | 18.1 | 5.9 | 5.0 | 6.3 |
| Illinois | 14.6 | 12.6 | 16.4 | 5.2 | 4.6 | 5.5 | 16.2 | 13.9 | 18.1 | 5.8 | 5.0 | 6.3 |
| Michigan | 14.7 | 12.7 | 16.6 | 5.2 | 4.6 | 5.6 | 16.2 | 13.9 | 18.2 | 5.9 | 5.0 | 6.3 |
| Wisconsin | 15.3 | 13.4 | 17.1 | 5.3 | 4.7 | 5.7 | 16.8 | 14.5 | 18.9 | 6.0 | 5.1 | 6.5 |
| West North Central | | | | | | | | | | | | |
| Minnesota | 15.7 | 13.8 | 17.6 | 5.4 | 4.8 | 5.7 | 17.4 | 15.0 | 19.5 | 6.2 | 5.3 | 6.6 |
| Iowa | 15.6 | 13.4 | 17.6 | 5.3 | 4.7 | 5.7 | 17.2 | 14.7 | 19.4 | 6.1 | 5.2 | 6.6 |
| Missouri | 15.0 | 12.9 | 16.8 | 5.2 | 4.7 | 5.5 | 16.5 | 14.0 | 18.5 | 5.9 | 5.1 | 6.3 |
| North Dakota | 15.8 | 13.8 | 17.9 | 5.4 | 4.8 | 5.8 | 17.3 | 15.2 | 19.4 | 6.1 | 5.3 | 6.5 |
| South Dakota | 15.8 | 13.7 | 18.0 | 5.4 | 4.8 | 5.8 | 17.3 | 14.9 | 19.6 | 6.1 | 5.2 | 6.7 |
| Nebraska | 15.9 | 13.7 | 17.9 | 5.3 | 4.7 | 5.7 | 17.2 | 14.8 | 19.3 | 6.1 | 5.2 | 6.6 |
| Kansas | 15.8 | 13.7 | 17.7 | 5.3 | 4.8 | 5.7 | 17.3 | 14.8 | 19.3 | 6.0 | 5.2 | 6.5 |
| South Atlantic | | | | | | | | | | | | |
| Delaware | 14.4 | 12.1 | 16.4 | 5.2 | 4.7 | 5.5 | 16.0 | 13.5 | 18.0 | 5.9 | 5.0 | 6.4 |
| Maryland | 14.5 | 12.4 | 16.3 | 5.3 | 4.7 | 5.6 | 16.0 | 13.6 | 17.9 | 5.9 | 5.0 | 6.4 |
| District of Columbia | 14.6 | 12.2 | 16.4 | 5.4 | 5.0 | 5.6 | 15.9 | 13.4 | 17.7 | 6.0 | 5.1 | 6.4 |
| Virginia | 14.7 | 12.6 | 16.6 | 5.3 | 4.8 | 5.6 | 16.1 | 13.6 | 18.1 | 6.0 | 5.1 | 6.4 |
| West Virginia | 14.5 | 12.6 | 16.3 | 5.1 | 4.6 | 5.5 | 16.0 | 13.7 | 18.0 | 5.8 | 5.0 | 6.3 |
| North Carolina | 14.8 | 12.7 | 16.7 | 5.4 | 4.8 | 5.7 | 16.4 | 13.8 | 18.5 | 6.1 | 5.2 | 6.5 |
| South Carolina | 14.5 | 12.3 | 16.3 | 5.5 | 5.0 | 5.8 | 16.0 | 13.5 | 17.9 | 6.1 | 5.2 | 6.5 |
| Georgia | 14.7 | 12.4 | 16.6 | 5.6 | 5.0 | 5.9 | 16.1 | 13.5 | 18.1 | 6.0 | 5.2 | 6.4 |
| Florida | 16.1 | 14.1 | 18.0 | 5.6 | 5.1 | 5.9 | 17.4 | 15.3 | 19.3 | 6.1 | 5.4 | 6.5 |
| East South Central | | | | | | | | | | | | |
| Kentucky | 14.8 | 12.9 | 16.6 | 5.1 | 4.6 | 5.4 | 16.0 | 13.8 | 18.0 | 5.8 | 5.1 | 6.2 |
| Tennessee | 14.9 | 12.9 | 16.7 | 5.3 | 4.8 | 5.6 | 16.4 | 14.0 | 18.5 | 6.0 | 5.2 | 6.4 |
| Alabama | 14.8 | 12.7 | 16.5 | 5.4 | 4.8 | 5.7 | 16.2 | 13.7 | 18.2 | 5.9 | 5.1 | 6.4 |
| Mississippi | 14.6 | 12.8 | 16.4 | 5.2 | 4.7 | 5.5 | 16.2 | 13.9 | 18.1 | 5.9 | 5.2 | 6.3 |
| West South Central | | | | | | | | | | | | |
| Arkansas | 15.4 | 13.5 | 17.3 | 5.5 | 5.0 | 5.8 | 16.6 | 14.4 | 18.6 | 6.0 | 5.2 | 6.4 |
| Louisiana | 14.4 | 12.5 | 16.2 | 5.5 | 4.9 | 5.8 | 15.8 | 13.6 | 17.7 | 5.9 | 5.2 | 6.3 |
| Oklahoma | 15.5 | 13.3 | 17.5 | 5.3 | 4.7 | 5.7 | 16.7 | 14.2 | 18.8 | 6.0 | 5.1 | 6.4 |
| Texas | 15.4 | 13.3 | 17.3 | 5.4 | 4.9 | 5.8 | 16.6 | 14.3 | 18.6 | 6.0 | 5.2 | 6.4 |
| Mountain | | | | | | | | | | | | |
| Montana | 15.3 | 13.3 | 17.5 | 5.4 | 4.8 | 5.8 | 16.7 | 14.6 | 18.7 | 6.1 | 5.3 | 6.5 |
| Idaho | 15.7 | 13.8 | 17.6 | 5.3 | 4.7 | 5.7 | 17.1 | 15.0 | 19.2 | 6.1 | 5.3 | 6.6 |
| Wyoming | 15.3 | 13.2 | 17.6 | 5.3 | 4.7 | 5.7 | 16.6 | 14.4 | 18.8 | 5.9 | 5.2 | 6.3 |
| Colorado | 15.7 | 13.7 | 17.5 | 5.3 | 4.8 | 5.6 | 17.1 | 14.8 | 19.1 | 6.0 | 5.1 | 6.5 |
| New Mexico | 15.5 | 13.8 | 17.2 | 5.4 | 4.8 | 5.8 | 17.2 | 15.1 | 19.1 | 6.0 | 5.3 | 6.5 |
| Arizona | 15.5 | 13.5 | 17.7 | 5.4 | 4.9 | 5.8 | 17.2 | 15.1 | 19.2 | 6.1 | 5.3 | 6.5 |
| Utah | 15.7 | 13.9 | 17.4 | 5.4 | 4.9 | 5.7 | 17.2 | 15.1 | 19.0 | 5.9 | 5.3 | 6.3 |
| Nevada | 14.4 | 12.6 | 16.4 | 5.1 | 4.7 | 5.4 | 16.1 | 14.1 | 18.1 | 5.8 | 5.0 | 6.3 |
| Pacific | | | | | | | | | | | | |
| Washington | 15.3 | 13.1 | 17.3 | 5.3 | 4.8 | 5.7 | 17.0 | 14.8 | 18.9 | 6.1 | 5.2 | 6.5 |
| Oregon | 15.6 | 13.5 | 17.6 | 5.4 | 4.9 | 5.8 | 17.0 | 14.7 | 19.1 | 6.1 | 5.2 | 6.6 |
| California | 15.5 | 13.4 | 17.4 | 5.4 | 4.8 | 5.7 | 16.9 | 14.7 | 18.7 | 6.0 | 5.2 | 6.4 |
| Alaska | 14.7 | 13.1 | 17.0 | 5.9 | 5.3 | 6.3 | 15.7 | 13.8 | 18.1 | 5.9 | 5.0 | 6.6 |
| Hawaii | 16.2 | 14.8 | 17.9 | 5.6 | 5.0 | 6.1 | 18.3 | 16.6 | 20.1 | 6.3 | 5.6 | 6.7 |

Source: National Center for Health Statistics, U.S. Decennial State Life Tables for 1969–71 and 1979–81.

**Chances per 1,000 of Surviving**
**From Age 65 to 85**
**1979–81**

| Both Sexes | Men | Women |
|---|---|---|
| 363 | 255 | 452 |
| 364 | 249 | 459 |
| 372 | 259 | 462 |
| 366 | 247 | 464 |
| 371 | 252 | 459 |
| 368 | 248 | 459 |
| 377 | 262 | 466 |
| 353 | 250 | 433 |
| 342 | 242 | 421 |
| 333 | 228 | 419 |
| 338 | 230 | 428 |
| 347 | 236 | 458 |
| 348 | 239 | 437 |
| 346 | 238 | 439 |
| 376 | 266 | 473 |
| 407 | 291 | 508 |
| 398 | 275 | 501 |
| 361 | 249 | 455 |
| 401 | 296 | 503 |
| 405 | 287 | 516 |
| 398 | 281 | 498 |
| 399 | 279 | 498 |
| 341 | 226 | 434 |
| 339 | 227 | 429 |
| 340 | 225 | 423 |
| 344 | 231 | 436 |
| 343 | 239 | 437 |
| 356 | 238 | 452 |
| 341 | 230 | 427 |
| 342 | 226 | 432 |
| 406 | 309 | 498 |
| 340 | 238 | 430 |
| 354 | 244 | 447 |
| 342 | 232 | 435 |
| 346 | 243 | 435 |
| 364 | 262 | 458 |
| 331 | 229 | 417 |
| 369 | 251 | 470 |
| 368 | 259 | 461 |
| 368 | 265 | 466 |
| 386 | 285 | 484 |
| 366 | 257 | 468 |
| 390 | 274 | 487 |
| 393 | 293 | 485 |
| 397 | 297 | 483 |
| 391 | 292 | 479 |
| 338 | 245 | 432 |
| 386 | 275 | 481 |
| 384 | 273 | 485 |
| 381 | 277 | 466 |
| 314 | 225 | 424 |
| 450 | 368 | 540 |

## Longevity Factors

Explanations attempting to account for the geographic longevity variations involve a myriad of factors. These include heritage of the local population, economic level and associated standards of living, adequacy of health and hospital facilities, climatic conditions and interstate migration. A definitive answer to the geographic disparities will most likely never be forthcoming, but the most plausible reason would indicate an interaction of a few of the previously mentioned components. What is certain, however, is that the number of our senior citizens is increasing rapidly. The implications of this trend for our health services system alone are tremendous. Utilization of hospital and nursing home facilities will increase significantly and we will be challenged to provide quality health care more economically. Our aged population will also need assistance with financial planning and postretirement programs.

## References

State longevity gains. *Statistical Bulletin* 67:8-10 Oct-Dec 1986.
See the companion article in this issue for chances of survival to age 100.

# Capsule Briefs

are timely literature selections with broad reader interest.

## Nuclear Nightmares

Doctors and children seem to worry more, at least in print, about nuclear radiation disasters than other groups just now. In separate articles, authors show how each group expresses its fears best. One has French children's pictures intended to persuade people of nuclear war's folly; in the other, physicians review the medical effects of the Chernobyl reactor radiation effects. Both articles are powerful. A. Brauner and F. Brauner *JAMA* 256(5): 613-616; 1986; and H.J. Geiger *ibid.*, pp. 609-612, 1986.

## Happiness for Smokers is Quitting

Here are two pieces of good news for the beleaguered smoker. First, nicotine gum is a cost-effective method of smoking cessation when used in conjunction with a physician's advice. Even better news: quitting raises one's HDL-cholesterol blood level so that the risk of atherosclerosis is decreased. So, do your smoker-friends a favor. Slip them the good news. G. Oster, *et al. JAMA* 256(10):1315-1318, 1986; and S.P. Fortman, *et al. American Journal of Epidemiology* 124(4):706-710, 1986.

## Fat's Problems

Once upon a time everything was simple. We all knew that fat was bad and that mother's cooking started it all. Now these "truths" are being questioned. First, there are sharp disagreements over the definition of overweight. The experts, we are told, cannot agree. Further complicating matters is whether our excess fat should be blamed on our genes or our social environment. A new scientific study has found that "human fatness is under substantial genetic control." So, while fatness may not be readily definable, no matter. It may be genetic, anyway. *Harvard Medical School Health Letter* pp. 1-4, September 1986; and A. Stunkard, *et al. JAMA* 256(1):51-54, 1986.

## Diet Lipids, Children, and Pediatric Confusion

American children eat a diet high in fat and cholesterol, and also have about the highest blood lipid levels in the world. A substantial literature links lifelong food patterns with adult heart disease incidence. Pediatricians cannot seem to decide what to do, however. For instance, progeny of young men with coronary heart disease were found by pediatric researchers to have elevated blood lipids. The authors called for early identification of cases, and intervention. In a separate 1986 Committee report, the American Academy of Pediatrics avoided any reference to such problems, thus leaving pediatricians without clear prevention guidelines for these clinically important cases. J. Lee, *et al. Pediatrics* 78(2):330-337, 1986; and Committee on Nutrition, *ibid.* 78(3):521-525, 1986.

## Measles in the United States, 1986

Preventable cases of measles increased 201 percent from 1985 to 1986, according to the Centers for Disease Control, Atlanta. Perhaps even more discouraging in this report is that nearly half of all new cases in the first 26 weeks of 1986 had histories of previous adequate immunization. It seems that the United States had better act soon, or measles will once again be an important public health problem. *Morbidity and Mortality Weekly Report* 35(33):525-528, 533, 1986. □

## Coping And Mental Health Linked Scientifically

People who use "mature" psychological defenses to cope with life's stresses have been shown to have better physical and mental health, in one previous study of Harvard graduates by the author. In this important follow-up study, the author and his team scientifically validate the previous work, this time using working-class subjects. The "mature" psychological defenses included suppression, anticipation, altruism, sublimation and playfulness. The social and psychological implications of this research seem extensive. G.E. Vaillant, *et al. Archives of General Psychiatry* 43(8):786-794, 1986. □

## Drug Use Among Doctors

Doctors have always been among the high-risk groups for drug abuse. In this sample (N = 337), 9.5 percent of surveyed physicians reported they were current, regular users of drugs for either recreational reasons, self-treatment or "instrumental" (minor uses, e.g., stimulants like caffeine). While the structure of the questions did not permit extensive inference, it seems safe to conclude that, if 10 percent of physicians use drugs regularly, billions of dollars of medical care must be ordered and delivered by such doctors each year. If we plan to test airline pilots for drugs, given estimates like these, can doctors' testing be far away? W.E. McAuliffe, *et al. New England Journal of Medicine* 315(13):805-810, 1986. □

## Shift Work and Heart Disease Risk Linked

In this Swedish study, 504 paper mill workers were followed for 15 years, and the incidence of coronary heart disease (CHD) in shift workers was compared with that of day workers. The relative risk of CHD in shift workers rose with their years of such work. The association was independent of smoking history and age. The rotating nature of shift work disturbs many biological rhythms essential to good health, but no previous study had linked such work so clearly to CHD. A. Knutsson, *et al. The Lancet* 2(2):89-92, 1986. □

# Alcohol Use in the United States

Alcohol remains the most widely used and abused drug in the United States, despite the recent publicity surrounding the increasing prevalence of cocaine and other illegal drugs. Results of surveys conducted since the 1970s have consistently indicated that two-thirds of the U.S. adult population consume alcohol on a regular basis. Further, it appears that the age at which young people begin to drink is dropping. In 1984 more than 30 percent of surveyed high school seniors reported having tried alcohol by age 13. Only 7 percent of seniors reported never having a drink of alcohol by grade 12.

Patterns of alcohol use in the United States reported in the literature indicate that it is: (1) more common among men than women, (2) a major public health problem among Native Americans and Hispanic men, (3) more intense among younger adults than older adults, (4) higher in the New England and Pacific states than the South or Midwest; and (5) inversely related to income and education. In addition, recent data suggest that 10 percent of the drinking population consume about half of all the alcohol used.

Data suggest that 10 percent of the U.S. drinking population consumes about half of all the alcohol consumed.

Chronic heavy drinking and/or alcoholism has many recognized social, medical and economic consequences. In 1983 problems associated with alcohol abuse cost the nation nearly $117 billion. An estimated 10 percent of all deaths (40 to 50 percent of all traffic fatalities; see page 26) and 10 percent of work-related accidents are associated with alcohol. Maternal alcohol use is acknowledged as a serious threat to the developing fetus, causing fetal alcohol syndrome in many cases, and fetal alcohol effects in others.

In 1983 problems associated with alcohol abuse cost the nation nearly $117 billion.

Increasing numbers of agencies, employers and clinicians are accepting the fact that problem drinking is a disease in need of treatment, and that such problems can occur at all levels of drinking, and affect all levels of society. Public attention to the magnitude of alcohol abuse is accelerating in the United States. For instance, the National Institute of Alcohol Abuse and Alcoholism (NIAAA) is currently preparing its *6th Special Report to The Congress on Alcohol and Health,* while the Alcohol Epidemiologic Data System (AEDS) continues monitoring sales and estimating per capita consumption; and the National Institute of Drug Abuse (NIDA) is surveying drinking behaviors across the country.

## Trends in Types of Alcohol Consumed

The following report is based on the most recent data provided by the NIAAA and AEDS. Updated estimates of alcohol consumption, based on sales data among persons aged 14 and over, are presented as well as trends in the type and quantity of alcoholic beverages sold between 1960 and 1984, and changes in apparent consumption between 1980 and 1984 across the country.

The apparent per capita alcohol consumption peaked in 1981 with a total of

2.77 gallons of absolute alcohol* consumed per person aged 14 and older (Figure A). This amount represents a 34 percent increase over that recorded in 1960. Since 1981 there has been a slight but noticeable decline in the annual per capita total alcohol consumed, dropping to a level similar to that estimated in the mid 1970s. Through 1981 per capita consumption of both beer and wine increased—beer by 62 percent and wine by 52 percent. Beer drinking has been declining slightly since 1981, whereas wine consumption has continued to increase, changes that generally parallel the aging of the 1947–57

> Per capita alcohol consumption peaked in 1981 with a total of 2.77 gallons of absolute alcohol consumed per person aged 14 and older.

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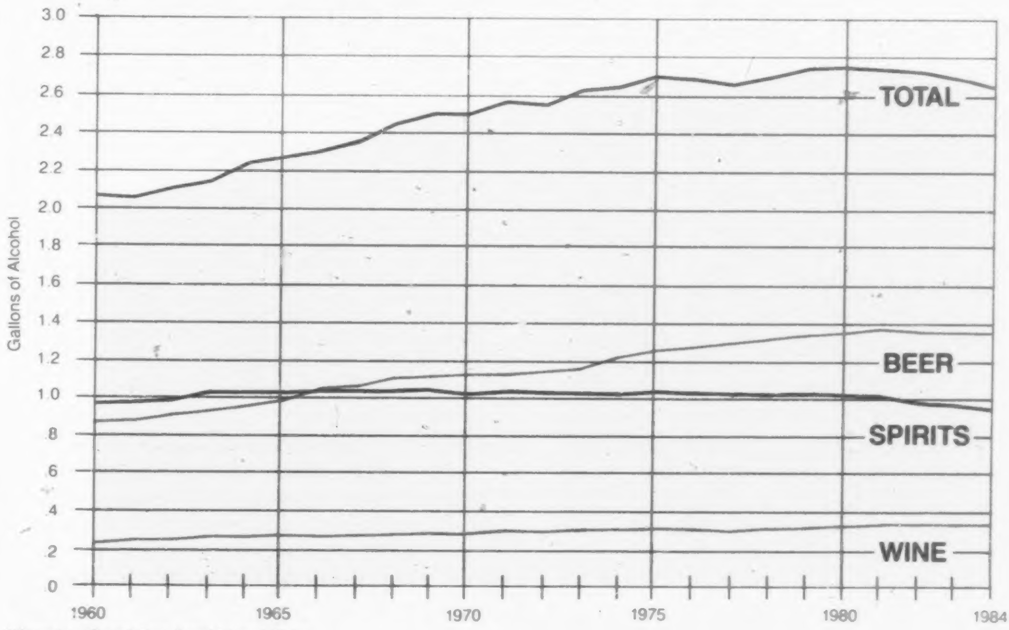
*AEDS suggested absolute alcohol concentrations: beer 4.5 percent, wine 12.9 percent and distilled spirits 41.1 percent.

**Figure A—Apparent Per Capita Alcohol Consumption* United States, 1960–1984**



*Based on Population Aged 14 and Older.
Source: National Institute of Alcohol Abuse and Alcoholism, 1986.

## Apparent Per Capita Alcohol Consumption* and Percent Change by State, 1980–84

| | 1980 Gallons | 1984 Gallons | Percent Change |
|---|---|---|---|
| United States | 2.76 | 2.65 | −4.0 |
| 1984 Rank | | | |
| 1 District of Columbia | 5.36 | 5.34 | −0.4 |
| 2 Nevada | 5.83 | 5.19 | −11.0 |
| 3 New Hampshire | 5.15 | 4.91 | −4.7 |
| 4 Alaska | 3.77 | 3.86 | +2.4 |
| 5 Wisconsin | 3.55 | 3.19 | −10.1 |
| 6 California | 3.39 | 3.19 | −5.9 |
| 7 Delaware | 3.15 | 3.17 | +0.6 |
| 8 Vermont | 3.35 | 3.12 | −6.9 |
| 9 Florida | 3.34 | 3.12 | −6.6 |
| 10 Colorado | 3.36 | 3.09 | −8.0 |
| 11 Arizona | 3.09 | 3.08 | −0.3 |
| 12 Massachusetts | 3.21 | 3.04 | −5.3 |
| 13 Hawaii | 3.53 | 2.97 | −15.9 |
| 14 Montana | 3.21 | 2.95 | −8.1 |
| 15 Rhode Island | 3.13 | 2.92 | −6.7 |
| 16 Wyoming | 3.41 | 2.86 | −16.1 |
| 17 Maryland | 3.10 | 2.84 | −8.4 |
| 18 New Jersey | 2.83 | 2.83 | — |
| 19 Texas | 2.81 | 2.82 | +0.4 |
| 20 Connecticut | 2.70 | 2.80 | +3.7 |
| 21 Illinois | 2.61 | 2.77 | +6.1 |
| 22 New Mexico | 2.87 | 2.75 | −4.2 |
| 23 Washington | 3.00 | 2.71 | −9.7 |
| 24 Minnesota | 2.85 | 2.68 | −6.0 |
| 25 New York | 2.87 | 2.67 | −7.0 |
| 26 Oregon | 2.82 | 2.63 | −6.7 |
| 27 Louisiana | 2.68 | 2.63 | −1.9 |
| 28 Michigan | 2.65 | 2.60 | −1.9 |
| 29 Maine | 2.67 | 2.57 | −3.7 |
| 30 North Dakota | 2.82 | 2.55 | −9.6 |
| 31 Virginia | 2.39 | 2.55 | +6.7 |
| 32 South Carolina | 2.46 | 2.50 | +1.6 |
| 33 Georgia | 2.50 | 2.48 | −0.8 |
| 34 Idaho | 2.61 | 2.43 | −6.9 |
| 35 Nebraska | 2.66 | 2.41 | −9.4 |
| 36 South Dakota | 2.55 | 2.33 | −8.6 |
| 37 Missouri | 2.32 | 2.27 | −2.2 |
| 38 Ohio | 2.32 | 2.26 | −2.6 |
| 39 Pennsylvania | 2.40 | 2.25 | −6.3 |
| 40 Indiana | 2.20 | 2.19 | −0.5 |
| 41 North Carolina | 2.17 | 2.13 | −1.8 |
| 42 Iowa | 2.24 | 2.09 | −6.7 |
| 43 Mississippi | 2.09 | 2.06 | −1.4 |
| 44 Kansas | 1.96 | 1.95 | −0.5 |
| 45 Tennessee | 1.91 | 1.95 | +2.1 |
| 46 Oklahoma | 2.38 | 1.91 | −19.7 |
| 47 Alabama | 1.85 | 1.90 | +2.7 |
| 48 Kentucky | 1.90 | 1.85 | −2.6 |
| 49 Arkansas | 1.81 | 1.78 | −1.7 |
| 50 West Virginia | 1.96 | 1.68 | −14.3 |
| 51 Utah | 1.70 | 1.53 | −10.0 |

*Gallons of absolute alcohol apparently consumed based on sales/revenues collected by retailers, divided by the population aged 14 and over.

Source: NIAAA and AEDS unpublished data.

"baby boom" age group. Consumption of distilled spirits, on the other hand, has declined steadily since 1971. These decreases in distilled spirits are not so readily explained by experts, except that they reflect secular changes in the type of beverage drunk.

Since 1968 beer has been the predominant form of alcohol consumed in this country, accounting for at least 45 percent of all the absolute alcohol sold. By 1979 beer accounted for half of the apparent absolute alcohol consumption and has remained at 51 percent since 1982.

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The proportion of total alcohol consumed in the form of distilled spirits has declined by 26 percent since 1960.

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The proportion of total alcohol consumed in the form of distilled spirits has declined by 26 percent since 1960. In 1984 spirits accounted for 35 percent of the alcohol consumption, representing .94 gallons per person; in 1960 it represented almost half. The consumption of wine has steadily risen from .23 gallons per person in 1960 to .37 gallons per person in 1984. Wine now accounts for about one seventh of all the alcohol consumed per capita each year in the United States.

### Alcohol Consumption by State

State alcohol consumption statistics are based on tax revenues or sales data and thus are proxy measures or estimates of "apparent consumption," because they do not include home brewed beverages or beverages purchased in one state and used in another. While the findings should be interpreted in the light of these limitations, they are nonetheless useful in identifying patterns or trends of alcohol use across the country.

Apparent consumption of alcohol in the United States decreased by 4 percent between 1980 and 1984 (see Table). Decreases were evident in all but 10 states and ranged from -0.3 percent in Arizona to -19.7 percent in Oklahoma. The increases in consumption were less pronounced among the states—ranging from 0.4 in Texas to 6.7 percent in Virginia.

The District of Columbia ranked highest in apparent alcohol consumption in 1984, with 5.34 gallons per person, an amount 102 percent above the average for the entire United States. Nevada and New Hampshire followed with per capita consumption of 96 and 85 percent, respectively, above the average. Other states in which the total gallons of alcohol consumed was 20 percent or more above the average were Alaska, Wisconsin, California and Delaware. Of these top seven states, all but Alaska and Delaware reported decreases in apparent per capita consumption since 1980.

The lowest amount of total absolute alcohol was consumed in Utah—1.53 gallons per capita—an amount 42 percent below the average. West Virginia, Arkansas and Kentucky were the next lowest with quantities at least 30 percent lower than the total.

## Consumption by Type

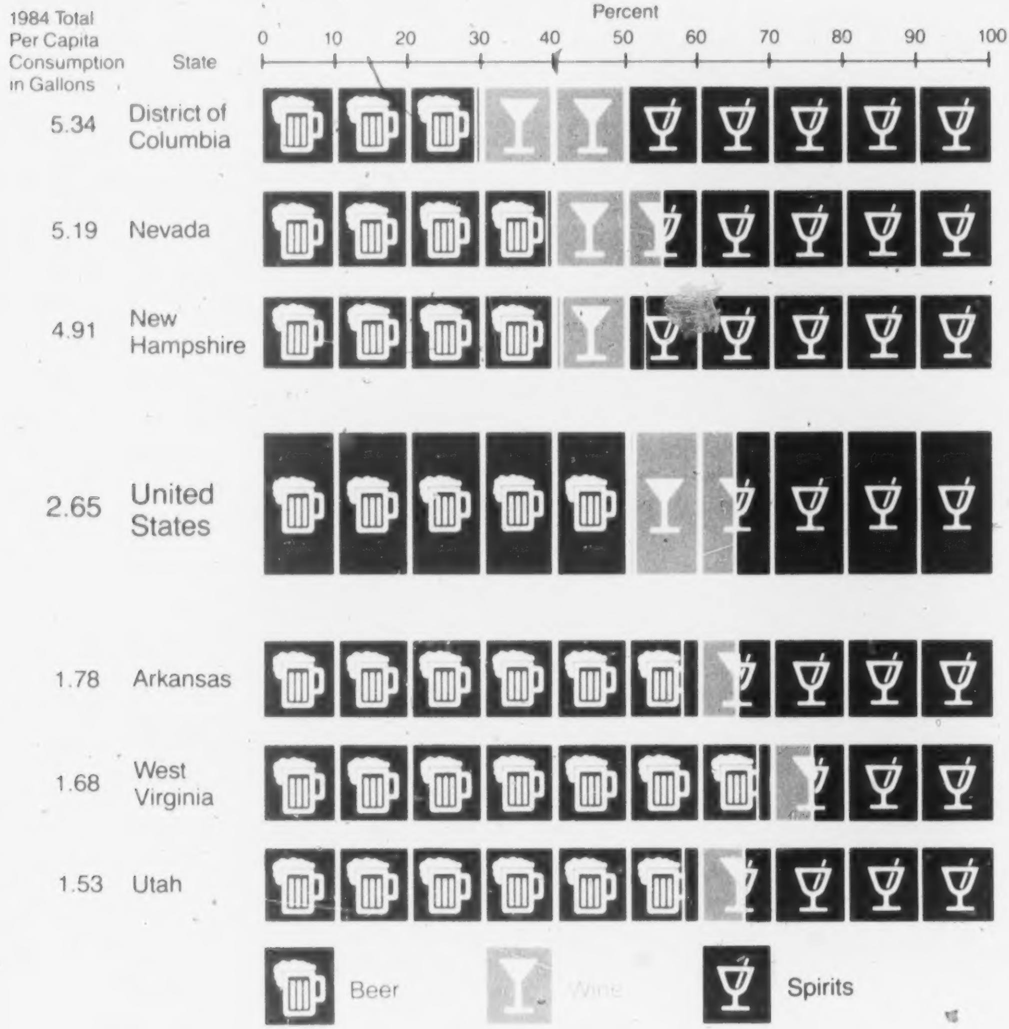
Differences exist in the types of alcohol consumed between the states ranked high and low in total apparent alcohol consumption (Figure B). For the country as a whole, beer accounts for 51 percent of the apparent absolute alcohol consumed, spirits 35 percent and wine 14 percent. The predominant form of alcohol in the top three consuming states, however, was distilled spirits, ranging from 45 to 50 percent of all the alcohol apparently consumed. Spirits accounted for fully half of the total apparent alcohol consumed in the District of Columbia, with 2.68 gallons per capita in 1984—an amount 185 percent higher than the average of .94 gallons for the entire country. The proportion of wine apparently consumed in the District was exactly three times that for the entire country, e.g., 1.11 gallons versus .37 gallons per capita, and accounted for 21 percent of the absolute alcohol consumed.

In the three lowest alcohol consuming states, beer was the major form of drink accounting for 57 to 67 percent of the apparent alcohol consumed. Distilled spirits were 26 to 36 percent of the total and wine was less than 10 percent of the apparent alcohol consumption.

Particularly disturbing—socially and culturally—is evidence that American youth is starting to drink at an earlier age.

Particularly disturbing—socially and culturally—is evidence that American youth is starting to drink at an earlier age. This trend has been considered so alarming that in April 1987 an antidrinking campaign among preadolescents will be launched by the NIAAA and the National Council on Alcoholism, Inc. Some alcohol abuse authorities are concerned that alcohol beverage advertising makes drinking attractive to children who want to feel grown up. In fact, the Board of Trustees of the American Medical Association (AMA) recently recommended that alcohol producers and distributors discontinue advertising aimed at youth, including promotions on high school and college campuses. The AMA Board invited the alcoholic beverage industry to cooperate

**Figure B—Proportion of Total Alcohol Consumed in the Form of Beer, Wine and Spirits in States With Highest and Lowest Apparent Consumption, 1984**



Source National Institute of Alcohol Abuse and Alcoholism, 1986.

in improving health education and advertising practices with regard to alcohol abuse.[10]

Clearly, alcohol abuse and dependence are problems of major public health import that deserve as much, if not more, media, medical and social attention as is currently given to the use of illicit drugs. Teen and preadolescent alcohol drinking, and the effects of maternal alcohol abuse on pre- and postnatal development, are areas with long-ranging and often devastating consequences—subjects that have largely been ignored until relatively recently.

Teen and preadolescent alcohol drinking, and the effects of maternal alcohol abuse on pre- and postnatal development, are areas with long-ranging and often devastating consequences.

Other critical areas in need of additional investigation and reporting include: better measures and definitions of the alcohol problem, increased biomedical and social research into the components of alcohol dependence and susceptibility, expansion of employee assistance programs, treatment systems and educational efforts, clarification and understanding of high-risk populations and monitoring of the trends of use and abuse. Application of new knowledge can serve to increase society's ability to develop prevention and treatment programs. The immediate national challenge would be to halt the rising alcohol abuse among newly afflicted groups, including adolescents and preadolescents, minorities, and single, working and pregnant women.

## References

National Institute of Alcohol Abuse and Alcoholism. *Fifth Special Report to the U.S. Congress on Alcohol and Health From the Secretary of Health and Human Services*. Rockville, Md.: DHHS, Alcohol, Drug Abuse and Mental Health Administration, December, 1983, and "A Summary of The Fifth Special Report to the U.S. Congress on Alcohol and Health." *Alcohol Health and Research World* 9(1), Fall 1984.

National Institute of Drug Abuse. *Student Drug Abuse in America 1975-1982*. DHHS Pub. No. (ADM) 83-1260. Rockville, Md.: NIDA, 1983.

Rachel, J.V., Maisto, S.A., Guess, L.L., Hubbard, R.L. "Alcohol Use Among Youth." *Alcohol Consumption and Related Problems*. Alcohol and Health Monograph No. 1. DHHS Pub. No. (ADM) 82-1190. Washington, D.C.: U.S. Govt. Print. Off., 1982.

Johnston, L.D., O'Mally, P.M. "Why do the nation's students use drugs and alcohol? Self-reported reasons from nine national surveys." *J. of Drug Issues* 16(1) 29-66, 1986.

Kim, T.K. "Antidrinking Campaigns Target Preadolescents." *JAMA* 256(11) 1411, Sept. 19, 1986.

Schoenborn, C.A., Cohen, B.H. "Trends in smoking, alcohol consumption, and other health practices among U.S. adults, 1977 and 1983." *Advance Data from Vital and Health Statistics* No. 118. DHHS Pub. No. (PHS) 86-1250. Hyattsville, Md.: National Center for Health Statistics, June 30, 1986.

MacGregor, R.R. "Alcohol and immune defense." *JAMA* 256(11) 1474-1479, 1986.

Institute of Medicine of the National Academy of Sciences. *Alcoholism and Related Problems: Opportunities for Research*. Washington, D.C.: National Academy of Sciences, 1980.

Alcohol Epidemiology Data System (AEDS). *U.S. Apparent Consumption for Calendar Year 1983*. Washington, D.C.: AEDS, 1985. (unpublished report)

Board of Trustees Report. "Alcohol: Advertising, counteradvertising and depiction in the public media." *JAMA* 256(11) 1485-1488, Sept. 19, 1986.

# Regional Variation in Mortality From Motor Vehicle Accidents

The leading killer of young Americans is the motor vehicle accident. More than one-third of all fatalities among 15–24-year-olds result from motor vehicle accidents, producing a death rate almost three times higher than that of the second leading cause of death (homicide) in this age bracket. The stark facts about motor vehicle deaths are well known: seventy-three percent of all motor vehicle deaths in the United States are among males, alcohol use is associated in over half of the cases, 63 percent of the fatalities occur in rural areas and more than half (56 percent) occur at night. Further, motor vehicle accidents remain a major source of fatality through age 64, claiming one life every 11 or 12 minutes, and in 1985 these accidents cost the nation an economic loss of over $48.6 billion.

> Motor vehicle accidents remain a major source of fatality through age 64, claiming one life every 11 or 12 minutes.

While much progress has been made in preventing and reducing deaths from a wide variety of diseases, particularly those affecting young people, similar strides have not occurred in reducing the rate of mortality from motor vehicle accidents. Legislative and other efforts to change human behavior and environmental conditions have somewhat ameliorated this problem, but to date, motor vehicle fatalities remain a major source of premature, and largely preventable, death in this country.

Based on data from the National Center for Health Statistics, Metropolitan statisticians computed age-adjusted rates of motor vehicle fatalities by state and region for the years 1979–81. The analysis was restricted to whites who comprised 88 percent of the deaths attributed to Codes E810-E825 of the Ninth Revision of the International Classification of Diseases (ICD 9) during these three years. Death rates per 100,000 population are shown by sex, state and geographic division in six 10-year age groups and for ages 15–74 combined (Tables 1 and 2). The combined rates have been adjusted for differences in the age distribution of the various states.

## Regional Variation—Men

For white males aged 15 to 74, motor vehicle death rates differed by as much as 82 percent between areas of the country; the highest rate was reported in the West South Central states and the lowest in the Middle Atlantic area (Figure A). Compared to the average mortality rate of 44.5 per 100,000 for the nation as a whole, the rates in the West South Central and the Mountain areas were significantly elevated, i.e., more than 30 percent above this average. In contrast to these high rates are those in the Middle Atlantic and New England states where the rates are 25 and 23 percent, respectively, below the average. Very little deviation in the ranking of fatality rates by geographic area was evident by age groups.

An even greater disparity was evident in the motor vehicle death rates between individual states. Leading the country in these age-adjusted fatalities for white men was Wyoming with a rate 93 percent above the national average. The rate in New Mexico ranked second with a rate close to 81 per 100,000 population (82 percent above the total) followed by Nevada with a rate 48 percent above the norm. Other states in which the rates exceeded the total by at least 30 percent included Mississippi, Idaho, Texas, Arizona, Montana,

## Table 1—Mortality From Motor Vehicle Accidents White Men Aged 15-74, United States, 1979–81

| Area | Death Rate per 100,000 | | | | | | |
|---|---|---|---|---|---|---|---|
| | Ages 15–74* | Ages 15–24 | Ages 25–34 | Ages 35–44 | Ages 45–54 | Ages 55–64 | Ages 65–74 |
| United States | **44.5** | 75.4 | 48.6 | 31.5 | 26.8 | 25.0 | 27.3 |
| New England | **34.1** | 67.0 | 36.8 | 20.5 | 15.4 | 14.2 | 19.6 |
| Maine | **40.3** | 84.9 | 39.7 | 24.9 | 13.6 | 16.0 | 25.2 |
| New Hampshire | **35.4** | 69.5 | 43.4 | 19.4 | † | † | † |
| Vermont | **44.9** | 81.9 | 45.2 | 30.4 | † | † | † |
| Massachusetts | **31.8** | 60.9 | 33.7 | 18.7 | 16.7 | 14.0 | 19.5 |
| Rhode Island | **25.7** | 44.7 | 30.4 | 21.2 | 14.9 | † | † |
| Connecticut | **36.7** | 76.0 | 39.8 | 20.5 | 12.7 | 16.4 | 18.0 |
| Middle Atlantic | **33.2** | 59.0 | 36.2 | 22.5 | 17.9 | 17.5 | 20.6 |
| New York | **31.0** | 53.9 | 32.4 | 21.6 | 18.6 | 17.7 | 19.1 |
| New Jersey | **31.6** | 56.6 | 34.2 | 19.9 | 16.3 | 17.5 | 22.7 |
| Pennsylvania | **37.1** | 66.8 | 42.3 | 25.3 | 18.1 | 17.4 | 21.4 |
| East North Central | **37.9** | 65.5 | 42.2 | 26.5 | 21.2 | 19.7 | 23.0 |
| Ohio | **36.3** | 62.8 | 43.6 | 25.1 | 17.0 | 18.9 | 20.7 |
| Indiana | **43.7** | 71.5 | 49.3 | 32.4 | 29.6 | 21.9 | 24.1 |
| Illinois | **37.4** | 66.3 | 40.6 | 25.3 | 20.1 | 20.6 | 22.7 |
| Michigan | **36.6** | 60.1 | 40.0 | 27.2 | 23.9 | 19.1 | 24.3 |
| Wisconsin | **37.9** | 72.2 | [illegible] | 24.2 | 18.3 | 18.0 | 24.9 |
| West North Central | **43.5** | 76.5 | 44.5 | 29.7 | 24.9 | 27.6 | 26.9 |
| Minnesota | **40.9** | 71.3 | 38.9 | 24.1 | 21.8 | 43.4 | 24.5 |
| Iowa | **42.4** | 76.8 | 44.5 | 27.4 | 22.3 | 26.3 | 24.3 |
| Missouri | **44.5** | 76.3 | 47.2 | 32.9 | 27.9 | 22.5 | 26.0 |
| North Dakota | **41.3** | 68.1 | 40.6 | 25.8 | † | 36.0 | 46.0 |
| South Dakota | **49.0** | 83.2 | 48.7 | 32.5 | 34.9 | 33.6 | † |
| Nebraska | **45.0** | 83.7 | 43.2 | 31.2 | 26.2 | 22.1 | 29.7 |
| Kansas | **47.2** | 82.2 | 50.7 | 35.7 | 25.1 | 25.1 | 28.1 |
| South Atlantic | **46.7** | 79.5 | 49.1 | 32.7 | 30.1 | 27.3 | 29.0 |
| Delaware | **40.2** | 72.5 | 55.1 | 23.9 | † | † | † |
| Maryland | **36.7** | 64.1 | 42.7 | 22.4 | 19.2 | 20.6 | 24.5 |
| District of Columbia | † | † | † | † | † | † | † |
| Virginia | **34.8** | 60.6 | 34.7 | 20.3 | 22.4 | 24.9 | 27.0 |
| West Virginia | **50.6** | 82.8 | 54.8 | 39.1 | 31.1 | 30.1 | 30.3 |
| North Carolina | **45.9** | 79.4 | 44.2 | 33.3 | 29.4 | 29.0 | 30.8 |
| South Carolina | **48.9** | 76.5 | 52.9 | 37.2 | 32.2 | 33.4 | 31.7 |
| Georgia | **54.9** | 95.0 | 51.4 | 35.6 | 39.6 | 36.7 | 39.5 |
| Florida | **54.7** | 91.7 | 61.2 | 41.6 | 35.1 | 25.6 | 27.3 |
| East South Central | **51.8** | 82.2 | 53.9 | 36.9 | 38.0 | 35.0 | 35.5 |
| Kentucky | **46.4** | 73.7 | 50.7 | 33.3 | 31.5 | 31.5 | 28.2 |
| Tennessee | **49.9** | 81.3 | 55.2 | 34.9 | 32.6 | 29.1 | 33.8 |
| Alabama | **55.1** | 85.9 | 55.3 | 39.6 | 40.7 | 41.9 | 41.1 |
| Mississippi | **64.5** | 95.8 | 55.3 | 44.3 | 75.4 | 44.0 | 44.1 |
| West South Central | **60.3** | 95.4 | 66.8 | 44.8 | 39.9 | 37.7 | 38.4 |
| Arkansas | **48.5** | 77.3 | 54.7 | 34.8 | 34.9 | 30.4 | [illegible] |
| Louisiana | **59.0** | 97.4 | 65.7 | 41.6 | 37.5 | 31.2 | 40.4 |
| Oklahoma | **60.2** | 96.1 | 67.7 | 39.7 | 41.3 | 39.5 | 39.8 |
| Texas | **62.6** | 97.6 | 68.6 | 48.4 | 41.1 | 40.3 | 41.1 |
| Mountain | **58.8** | 90.2 | 66.1 | 44.2 | 42.4 | 36.6 | 35.8 |
| Montana | **61.2** | 95.1 | 68.4 | 47.9 | 41.5 | 32.4 | 43.7 |
| Idaho | **62.9** | [illegible] | 66.1 | 40.7 | 47.7 | 39.2 | 52.2 |
| Wyoming | **85.9** | 134.7 | 98.2 | 59.4 | 59.8 | 53.8 | † |
| Colorado | **47.9** | 71.3 | 55.2 | 39.3 | 35.9 | 25.0 | 28.0 |
| New Mexico | **80.8** | 122.5 | 91.4 | 64.7 | 50.8 | 56.9 | 47.8 |
| Arizona | **60.6** | 91.9 | 75.9 | 38.0 | 46.9 | 36.9 | 29.0 |
| Utah | **44.4** | 67.9 | 41.8 | 35.9 | 30.5 | 35.3 | 39.0 |
| Nevada | **66.0** | 109.1 | 68.1 | 56.5 | 42.7 | 39.0 | † |
| Pacific | **49.2** | 83.4 | 54.5 | 35.5 | 28.7 | 26.9 | 29.5 |
| Washington | **43.2** | 74.8 | 48.2 | 30.2 | 23.6 | 24.3 | 25.0 |
| Oregon | **48.2** | 75.5 | 54.0 | 37.3 | 30.8 | 28.8 | 32.6 |
| California | **51.1** | 87.2 | 56.6 | 36.9 | 29.6 | 27.3 | 30.0 |
| Alaska | † | 61.4 | 43.0 | † | † | † | † |
| Hawaii | † | 64.8 | 37.1 | † | † | † | † |

*Adjusted on basis of age distribution of the United States total population, 1940.

†Fewer than 200 deaths for all ages and/or fewer than 20 deaths per age group, rate not computed.

Source of basic data: Mortality from Division of Vital Statistics, National Center for Health Statistics.

Rates computed in the Health and Safety Education Division of the Metropolitan Life Insurance Company.

# Table 2—Mortality From Motor Vehicle Accidents White Women Aged 15-74, United States, 1979–81

| Area | Ages 15–74* | Ages 15–24 | Ages 25–34 | Ages 35–44 | Ages 45–54 | Ages 55–64 | Ages 65–74 |
|---|---|---|---|---|---|---|---|
| | Death Rate per 100,000 | | | | | | |
| United States | 14.4 | 23.4 | 12.8 | 10.7 | 10.1 | 10.7 | 13.6 |
| New England | 10.2 | 18.6 | 9.1 | 6.6 | 7.0 | 5.3 | 8.8 |
| Maine | 12.8 | 26.1 | 10.5 | † | † | † | † |
| New Hampshire | † | † | † | † | † | † | † |
| Vermont | † | † | † | † | † | † | † |
| Massachusetts | 9.2 | 16.3 | 8.0 | 6.1 | 5.9 | 5.2 | 9.5 |
| Rhode Island | † | † | † | † | † | † | † |
| Connecticut | 11.2 | 20.6 | 10.0 | 6.7 | 8.3 | 5.8 | 8.6 |
| Middle Atlantic | 10.4 | 17.3 | 8.9 | 7.2 | 6.7 | 8.0 | 11.8 |
| New York | 10.1 | 16.4 | 8.1 | 7.0 | 7.0 | 7.5 | 13.7 |
| New Jersey | 10.2 | 18.1 | 8.6 | 5.8 | 6.1 | 8.6 | 11.5 |
| Pennsylvania | 10.9 | 17.9 | 10.1 | 8.5 | 6.6 | 8.3 | 9.5 |
| East North Central | 12.6 | 20.4 | 11.0 | 9.5 | 8.9 | 9.2 | 11.8 |
| Ohio | 11.9 | 20.1 | 9.8 | 8.3 | 9.3 | 7.8 | 10.9 |
| Indiana | 13.6 | 21.7 | 13.5 | 9.9 | 8.3 | 9.8 | 13.9 |
| Illinois | 11.6 | 18.7 | 10.3 | 9.0 | 7.7 | 8.6 | 11.9 |
| Michigan | 13.7 | 21.2 | 12.0 | 11.2 | 10.3 | 10.9 | 11.1 |
| Wisconsin | 12.9 | 21.3 | 10.6 | 9.5 | 9.1 | 10.0 | 12.3 |
| West North Central | 14.4 | 23.6 | 11.0 | 10.6 | 10.2 | 12.9 | 14.7 |
| Minnesota | 12.9 | 21.5 | 9.0 | 9.5 | 8.5 | 13.6 | 12.8 |
| Iowa | 13.6 | 23.6 | 10.0 | 9.4 | 9.6 | 13.1 | 10.6 |
| Missouri | 15.7 | 24.7 | 14.4 | 12.2 | 10.7 | 11.1 | 15.5 |
| North Dakota | † | † | † | † | † | † | † |
| South Dakota | † | † | † | † | † | † | † |
| Nebraska | 14.7 | 23.7 | 10.5 | 12.0 | † | 15.7 | 15.5 |
| Kansas | 15.6 | 23.3 | 10.9 | 12.3 | 14.7 | 13.9 | 17.1 |
| South Atlantic | 15.7 | 26.6 | 13.2 | 11.4 | 11.1 | 11.8 | 13.5 |
| Delaware | † | † | † | † | † | † | † |
| Maryland | 11.7 | 23.7 | 8.0 | 6.7 | 6.3 | 8.3 | 11.6 |
| District of Columbia | † | † | † | † | † | † | † |
| Virginia | 11.8 | 20.8 | 9.2 | 8.0 | 9.2 | 7.2 | 12.1 |
| West Virginia | 15.6 | 22.9 | 15.2 | 12.5 | 12.9 | 11.7 | 12.2 |
| North Carolina | 15.5 | 26.9 | 12.1 | 11.2 | 10.9 | 11.7 | 13.5 |
| South Carolina | 17.1 | 24.5 | 15.8 | 14.3 | 12.1 | 13.7 | 19.1 |
| Georgia | 17.7 | 30.9 | 13.1 | 10.9 | 12.6 | 16.4 | 17.5 |
| Florida | 19.3 | 31.5 | 18.7 | 15.0 | 13.1 | 13.3 | 12.8 |
| East South Central | 16.2 | 25.7 | 14.5 | 11.8 | 11.5 | 13.0 | 15.8 |
| Kentucky | 13.6 | 21.5 | 10.3 | 11.4 | 10.1 | 10.7 | 14.5 |
| Tennessee | 16.6 | 26.7 | 15.5 | 12.6 | 11.7 | 11.4 | 14.9 |
| Alabama | 17.1 | 26.5 | 16.3 | 9.9 | 12.6 | 16.9 | 15.9 |
| Mississippi | 19.3 | 31.2 | 17.9 | 14.3 | 11.5 | 14.4 | 20.1 |
| West South Central | 18.5 | 28.3 | 16.5 | 14.9 | 13.7 | 13.6 | 17.9 |
| Arkansas | 14.3 | 22.8 | 10.5 | 12.7 | 9.5 | 11.8 | 15.8 |
| Louisiana | 16.9 | 27.1 | 14.5 | 13.9 | 11.5 | 11.9 | 17.2 |
| Oklahoma | 19.6 | 31.8 | 18.4 | 13.3 | 12.4 | 14.2 | 22.3 |
| Texas | 19.2 | 28.7 | 17.5 | 15.9 | 15.3 | 14.2 | 17.2 |
| Mountain | 19.7 | 30.0 | 19.0 | 15.2 | 13.6 | 15.0 | 18.5 |
| Montana | 24.0 | 43.4 | 21.1 | † | † | † | † |
| Idaho | 19.6 | 28.7 | 19.6 | 14.8 | † | 20.7 | † |
| Wyoming | † | † | † | † | † | † | † |
| Colorado | 17.7 | 28.1 | 16.4 | 15.2 | 10.9 | 12.3 | 15.2 |
| New Mexico | 22.0 | 30.8 | 20.6 | 21.4 | 17.1 | 14.6 | 19.2 |
| Arizona | 19.4 | 29.7 | 19.1 | 12.8 | 15.4 | 15.6 | 16.7 |
| Utah | 14.9 | 19.2 | 11.9 | 10.7 | 12.2 | 13.4 | 30.2 |
| Nevada | 28.1 | 44.5 | 35.1 | 21.6 | † | † | † |
| Pacific | 16.6 | 26.5 | 15.6 | 12.1 | 11.9 | 11.8 | 14.9 |
| Washington | 15.8 | 25.5 | 15.0 | 12.5 | 10.7 | 10.4 | 12.3 |
| Oregon | 16.6 | 26.6 | 12.4 | 12.3 | 15.1 | 13.2 | 15.0 |
| California | 16.9 | 27.1 | 16.4 | 12.1 | 11.8 | 11.8 | 15.3 |
| Alaska | † | † | † | † | † | † | † |
| Hawaii | † | † | † | † | † | † | † |

*Adjusted on basis of age distribution of the United States total population, 1940.

†Fewer than 200 deaths for all ages and/or fewer than 20 deaths per age group, rate not computed.

Source of basic data: Mortality from Division of Vital Statistics, National Center for Health Statistics.

Rates computed in the Health and Safety Education Division of the Metropolitan Life Insurance Company.

Oklahoma and Louisiana. Rural areas tend to have less well-protected roads, more grade-level railroad crossings, and vehicles with more occupants than is the case in urban areas; these factors all contribute to the high rates reported above. For the most part, these states retained their dubious distinction as leaders in motor vehicle fatalities in each of the six age groups.

The Northeastern states, with greater population density, tended to have the lowest death rates for men. Rhode Island's rate, for instance, was 42 percent below the national average and 70 percent below that reported for Wyoming. New York, New Jersey and Massachusetts followed with low rates for white men averaging 29 to 30 percent below the total.

## Motor Vehicle Fatalities by Age

White men 15 to 24 years old experienced the highest absolute number and rate of motor vehicle fatalities: 39,189 deaths, 75.4 per 100,000 population. This young group accounted for 43 percent of all motor vehicle deaths among white men aged 15–74, producing a rate 69 percent above the average for all men in the study and 55 percent above the rate for ages 25–34.

Mortality rates decreased between each of the first five age groups to a low of 25.0 per 100,000 for ages 55–65—this low rate was two-thirds lower than that for men aged 15–24. The rates dropped by more than a third in both of the two age groups following 15–24, with a slower decline evident thereafter. Rates increased slightly among the 65-to-74-year-olds, which is more a reflection of the poorer prognosis and increased complications usually associated with all forms of accidents among this age group than an absolute increase in the number of such deaths.

## Regional Variation—Women

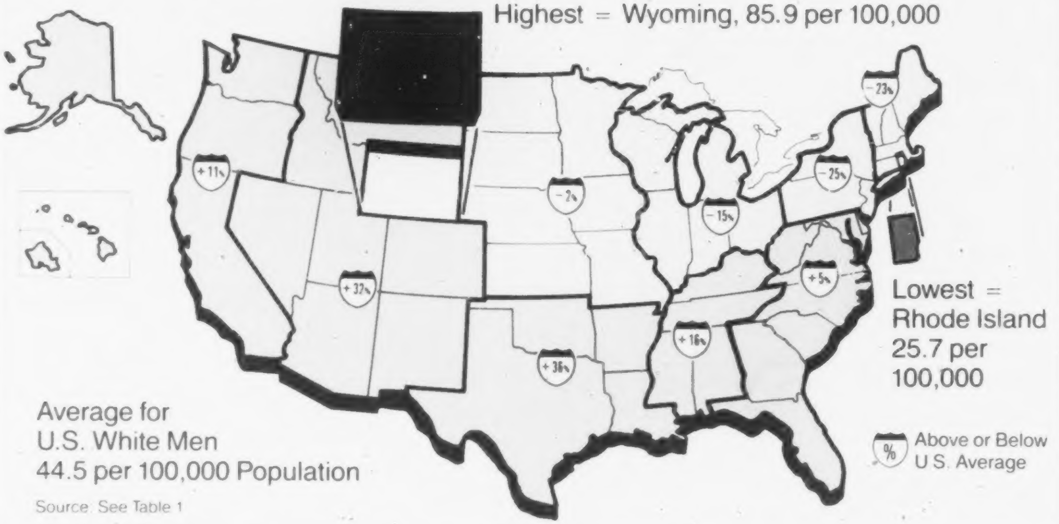
Motor vehicle fatalities among white women aged 15–74 averaged 68 percent below that of men. This female advantage persisted across all ages but was the most pronounced among women aged 25–34. As with the rates for white men, rates above the national average for women were found in the five areas of the country comprising the Western and Southern parts of the United States (Figure B). The Mountain states reported the highest mortality rate for white women—37 percent above the average for all U.S. white women, and 93 percent above the lowest rate reported in the New England area. The West South Central portion of the country recorded the second highest mortality rate (18.5 per 100,000 population), 28 percent above the average, due in large part to the rates reported in Oklahoma and Texas.

> Mountain states reported the highest death rates for white women—37 percent above the average for all U.S. white women.

In contrast to the high mortality in the West and South, the motor vehicle mortality rate for white women in New England was 10.2, 29 percent lower than the national average of 14.4 per 100,000. The Middle Atlantic states registered a similarly low rate (28 percent lower than the average) with the East North Central area ranking third lowest, with a rate 13 percent below the average.

On a state-by-state basis, there was a difference of more than 200 percent between the motor vehicle mortality rates reported for women in Nevada and in Massachusetts. Nevada, Montana and New Mexico led in fatalities among the white women, with rates close to two times the average. Idaho, Oklahoma, Arizona, Mississippi, Texas and Florida followed with

**Figure A—Geographic Variation in Motor Vehicle Fatalities White Men Aged 15–74, 1979–81**



Highest = Wyoming, 85.9 per 100,000

Lowest = Rhode Island 25.7 per 100,000

Average for U.S. White Men 44.5 per 100,000 Population

Source: See Table 1

rates above 19 per 100,000, or at least 33 percent above the norm.

Massachusetts recorded the lowest rate (9.2 per 100,000 population), a rate 36 percent lower than the U.S. average. New York, New Jersey, Pennsylvania and Connecticut experienced the next four lowest mortality rates, ranging between 30 and 22 percent below the total. Rates between 17 and 19 percent lower than average were reported in Ohio, Virginia, Maryland and Illinois.

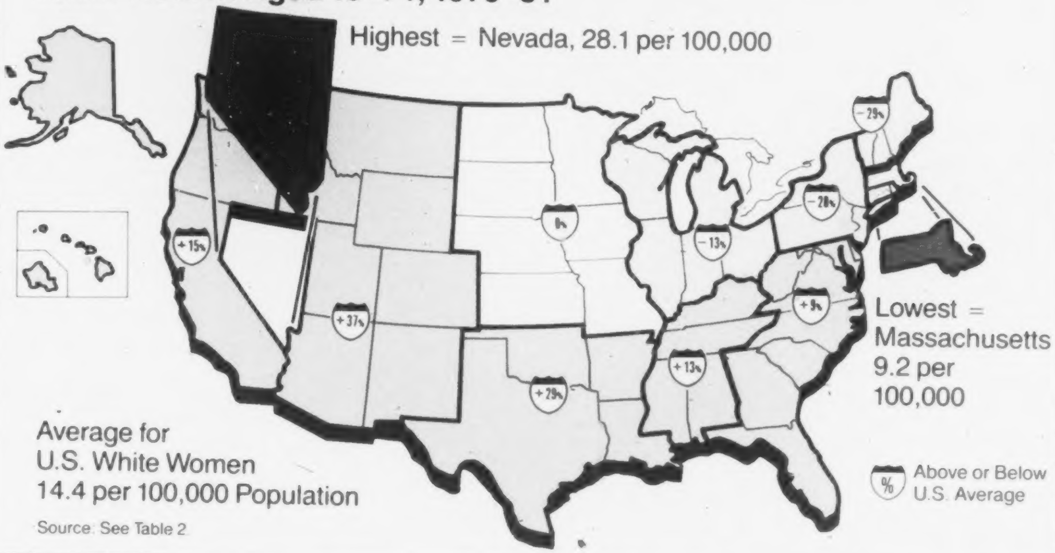
## Mortality by Age

As with the men, women aged 15–24 experienced the highest motor vehicle mortality, with a rate 63 percent above that for all women in the study and almost twice that for women aged 25–34. Rates continued decreasing by age through ages 45–54, after which they began to climb, but always remaining below the average. The relative ranking of the age-adjusted rates reported for all white women by area and state held fairly constant across the age groups.

## Increased Education, Surveillance and Behavior Modification

Death rates from all accidental causes have decreased fairly steadily since 1945, but mortality rates from motor vehicle accidents have not kept pace. This fact persists despite efforts to legislate seatbelt use, the enforcement of a 55 mile-per-hour speed limit, stricter laws regarding driving and drinking, some redesign of automobiles and accessories, and improved rural medical care and emergency medical care services. While it is encouraging that between 1980 and 1984 the proportion of intoxicated driver deaths dropped from 50 to 43 percent, it is distressing that between 1983 and 1984 substantial increases have occurred in the motor vehicle fatalities among women, drivers of heavy trucks, motorcycle drivers and occupants of compact cars. Unfortunately, drinking drivers aged 16–24 continue to account for a disproportionate amount of the alcohol-related traffic fatalities.

**Figure B—Geographic Variation in Motor Vehicle Fatalities White Women Aged 15–74, 1979–81**


Highest = Nevada, 28.1 per 100,000
–29%
–28%
0%
–13%
+15%
+37%
+9%
+13%
+29%
Lowest = Massachusetts 9.2 per 100,000
Average for U.S. White Women 14.4 per 100,000 Population
%
Above or Below U.S. Average

Source: See Table 2.

Reports have shown a close correlation between motor vehicle fatality rates in a state and their reported rates of accidental injuries in general. Such a situation is interpreted as a reflection of the rates of alcoholism, and of the socio-demographic characteristics of the area as well as of access to medical care. Campaigns to reduce all accidental injuries and fatalities must be directed toward high-risk individuals and specific areas of the country, e.g., drinking drivers, young male drivers, older female drivers and rural area residents. Ideally, these campaigns should be synchronized with efforts to correct certain environmental hazards. Whether the higher rates of motor vehicle fatalities in rural areas are associated with more hazardous road conditions (i.e., the lack of guard rails on mountain or winding roads, non-protected and/or increased numbers of grade-level railroad crossings), the inaccessibility of medical services in certain areas of the country or to the socioeconomic characteristics or behavior patterns of the population, it is clear that much research is still needed to educate people about this major public health problem and to target those persons and areas at highest risk.

No law nor any court sentence could impose a harsher penalty on those who drive at unacceptable and needless risk than that which they impose on themselves, their victims and the families who are party to road accidents. Despite the pain borne by causative drivers, the high social and financial costs to society from motor vehicle accidents demand even more stringent public programs to curb this preventable form of suffering. ☐

## References

Baker, S.J., O'Neill, B., Karpf, R.S. *The Injury Fact Book.* Lexington, Massachusetts: D.C. Heath and Company, 1984.
National Safety Council. *Accident Facts, 1986 Edition.* Chicago, Illinois: National Safety Council, 1986.
National Highway Traffic Safety Administration. *Fatal Accident Reporting System 1984.* Washington, D.C.: U.S. Department of Transportation, National Center for Statistics and Analysis, 1985.
Aitken, S.S., Zobeck, T. "Trends in alcohol-related fatal motor vehicle accidents for 1983." *Alcohol Health and Research World* 9(4):60-62, Summer 1985.

# STATISTICAL INFORMATION, PLEASE

Questions frequently come to SB that we would like to share with our readers. This new feature column will attempt to answer as many of your statistically oriented questions as space permits. We hope you will enjoy this new feature and will participate by sending us your queries.

**Q** *What is the difference between life expectancy and life span?*

**A** Both terms are used to measure longevity. Life expectancy refers to the number of additional years persons at a particular age are *expected* to live, *on the average*. Life span, on the other hand, relates to the oldest age that human beings *could live*, given optimum conditions. The biological limit of human life is slowly increasing (see accompanying *SB* article on centenarians). However, in order to exclude rare cases, life span may best be defined as the age beyond which less than 0.1 percent of the original group survives. If we apply this definition to the 1979–81 life tables, life span appears to be about 106 years for the U.S. population.

Although observed life span has not changed much over the years, estimates of life expectancy have improved considerably in modern times in most countries. Preliminary 1985 life tables prepared by Metropolitan Life showed the life expectancy for the total U.S. population to be 74.7 years.

* * *

**Q** *How does the increase in the total number of families compare with the rise in families headed by a female?*

**A** There has been a dramatic increase in the number of families headed by women. Between 1970 and 1985 the total number of families increased by 11.3 million or 22 percent, while those headed by a female grew by 4.6 million or about 84 percent. Even more dramatic was the increase in the number of householders who were mothers with one or more children under 18 years living with them; these doubled over the 15 year period.

In 1985 female householders represented 16 percent of the total number of families, up from 11 percent in 1970. Of all families with children under age 18 living with parents, 19 percent were maintained by the mother alone in 1985, compared with 10 percent in 1970.

* * *

**Q** *Whom do the widowed and divorced marry?*

**A** Widowed and divorced persons tend to marry persons of similar marital status. In fact, according to the latest data from the National Center for Health Statistics, over two-thirds of the widowed and divorced who remarried chose partners who were previously widowed or divorced. However, among those in these two marital states, men more often than women remarried individuals who had not been previously married.

* * *

Please send your questions to Statistical Information Editor
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## Coming in Future Issues

- Profile of American Wives
- Profile of American Husbands
- Influenza and Pneumonia: Mortality Variations by State
- Trends in Cervix Cancer Mortality

# Historical Perspectives

## 20 YEARS AGO

### IN THE 1967 STATISTICAL BULLETIN

**Alcoholism was recognized as a major health problem** requiring the combined skills of medicine, psychiatry and sociology to combat it. The National Council on Alcoholism estimated there were about 6,500,000 alcoholics in the United States in the mid-1960s—an increase of about 1.5 million within a decade. (There were an estimated 10.6 million alcoholics in the U.S. in 1985—ed.) Nearly 11,000 deaths from alcoholic disorders were reported in the United States in 1964, with almost three-fourths due to alcohol-related cirrhosis of the liver. (Although cirrhosis mortality has been decreasing since 1973, this decline has been offset by an increase in other types of alcohol-related mortality, especially motor vehicle fatalities—ed.) Between 1950–51 and 1963–64, mortality from alcoholic disorders rose more steeply among nonwhites and women. Among white men aged 20 and over, mortality increased almost 30 percent during this period, compared with a rise of over 90 percent for nonwhite men. Among women, whites recorded a 75 percent increase compared to almost 150 percent for nonwhites. Although there was a steep upward trend in the reported alcoholism rate, the problem may have been greatly understated because of the social stigma associated with this disease. (Cost to the U.S. economy from alcohol abuse was estimated to be as high as $116.7 billion in 1983—ed.) (Page 7, April)

**A study by Metropolitan Life statisticians on international variations in suicide rates** by sex and age among 13 selected countries for the period 1952–53 to 1963–64, showed increases in all but three of the countries; rates for Austria, Japan and Italy declined. The United States had an 8 percent increase, while Poland recorded the largest rise among men (58 percent). Australia led among women with an increase of 80 percent. In all countries studied, the greatest increases in suicide rates were reported at ages under 45. Suicide was the third leading cause of death in the United States at ages 15–24. Still, when compared with other countries, the U.S. suicide rate was relatively low—9.3 per 100,000 for white men and 3.2 for white women, with nonwhites reporting even lower rates. For all men and women, Hungary and Japan reported the highest rates—35.5 and 14.3 per 100,000, respectively. Italy's corresponding rates of 7.1 and 2.9 were the lowest. Suicide rates were consistently higher for men than for women, the ratio ranging from 1.5:1 in Japan to about 5:1 in Poland. The actual number of suicides could not be determined precisely since accuracy of these statistics was influenced by different religious, social and psychological factors. However, according to data from the World Health Organization, 76,000 suicides were reported in 1964 among the countries studied. There were 20,000 in the United States, almost 15,000 in Japan and about 12,000 in Germany. (Latest data now report about 29,000 suicides annually in the United States, nearly 25,000 in Japan and about 13,000 in Germany—ed.) In the United States, suicide was recognized as a major medical and public health problem. Prevention centers, public education to detect warning signs, and intervention were effective in saving many lives. (Page 4, March)

**Arthritis, a major crippling disease, afflicted an estimated 12,668,000 persons** in the United States, according to a Public Health Service Survey for 1961–63. Other studies based on physical examinations, however, estimated larger numbers. Approximately 3.6 million persons aged 18–79 had rheumatoid arthritis while another 40 million in the same age range had some degree of osteoarthritis, many without reported symptoms. Arthritis occurred more frequently among older persons, especially women. Younger people, however, were not immune. There were some 200,000 arthritic victims under age 25, about 40,000 of whom were under 15.

A crippling disease, arthritis was of minor importance as a cause of death. In 1964 the death rate from this disease was 1.1 per 100,000, with almost all the deaths occurring after age 35. Many arthritic victims, especially those with low incomes, did not seek medical aid but accepted the discomfort of arthritis as another unpleasant and inevitable consequence of growing old. Only education would make people aware that treatment could ease arthritic pains and reduce the crippling effects of the disease. (Page 7, February)

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Metropolitan Life
AND AFFILIATED COMPANIES

# SB

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# From The Editor's Desk

Does your employer's health benefit plan require you to make some complicated decisions about your medical care? The odds are excellent that it does, and that you may need some new-found knowledge and matching assertiveness skills if you are to participate in those decisions effectively. Having created these new benefit plans, employers are urged, in this issue, by John D. Moynahan, Jr. to consider developing employee education. An executive vice-president of Met Life, Mr. Moynahan offers some insights into the matter that your benefits manager may find useful.

### Hernia Repair Charges

Hernia repair seems a subject which does not readily fade from view. In "Historical Perspectives, 20 Years Ago" this issue, we note how common it was in 1967. In a related article, *SB* shows that hernia repair remains a topical medical care condition, which has financial as well as anatomical strains to it. The state in which one lives determines rather markedly how much one is charged for the procedure by the hospital and by one's doctors. How do the doctors in your state fare?

### Problems of Pneumonia and Flu

In this age of sophisticated medical and prevention practice, who would ever guess that pneumonia and influenza were becoming problematic conditions again? It is a fact. While their severity pales before cardiovascular disease and cancer, their recent increased incidence represents a thorny reminder that controlling communicable diseases must remain an essential part of a nation's health agenda.

### Mental Health Care Highlights

Mental health insurance benefits in the United States have major problems. The annual growth in mental health care charges seems to threaten the many therapeutic gains mental health care has made over the last 25 years. In "Capsule Briefs" some of the problems are highlighted. While answers are not offered, some hard questions are posed from the recent literature.

### On American Wives

Here is a trick question: "What is a traditional wife?" If you answered: today the tradition is for her to work outside the home, you may proceed to the head of the class with permission to stop along the way and read our article on "Profile of American Wives."

### Status of Uterine Cancer

Cancer of the uterus was the most common cause of cancer death in American women in the 1930s. Today its burden is dramatically smaller. Find out more about this public health accomplishment and its present status in this issue. It's another gratifying example of the progress made in disease prevention during this century.

On that uplifting note, I wish you good reading. □

Charles B. Arnold

*The Statistical Bulletin will publish comment and criticism from readers about its contents. Alternate interpretations of data analyses or different points of view about subjects are particularly welcome. Use address at end of publisher's statement opposite page.*

# Guest Editorial

## New Roles For Consumers In Health Care

Profound changes are occurring in American health services that in part are driven by consumers' need to be assertive. The onset of this new assertiveness can be directly traced to the emergence of research findings which question many commonly held assumptions about medical services.

For instance, regional cost differences in surgical procedures (such as those shown in this issue of the *Statistical Bulletin*) raise critical questions that employers and their employees must face in selecting among health care options. Formerly passive recipients of health care are now expected to become active co-participants in medical decision-making. Analyses of regional medical care differences have also been made available to the medical profession. As this new information is disseminated, it can help providers alter patterns of care they heretofore may not have recognized. As a result, patients and physicians may now select more wisely among the many health service options unavailable only five years ago. To participate effectively in that decision process will, however, require new competencies on the part of consumers in technical areas of health care.

As part of that decision process, consumers and employers must be willing to assert their right to question the medical necessity of a recommended procedure. This assertiveness may mean that formerly unfamiliar questions must be pursued, such as:

1. *If I undergo a recommended procedure, what is the scientific evidence that my health will be improved?*
2. *What should I do if the second opinion doctor disagrees with the necessity for a procedure?*
3. *What are the chances that the treatment may be worse than the disease?*
4. *Are there effective, noninvasive, alternative treatments I might have instead of the procedure?*
5. *If I have the procedure, where is the best place for it to be performed?*
6. *Where can I obtain answers to questions like the above?*

Because the health care market is vast and complex, it is essential that consumer education for wise decisions receive high priority in the health care industry. Further, skillful help must be available to assist consumers to evaluate the answers they receive. Possible sources for objective education, evaluation and consultation services include hospitals, individual providers, employer benefits departments, unions and health insurance carriers.

Some leading insurance companies, for instance, through newly-formed medical case management services, have done much to alleviate the painful confusion that may occur when a complex condition emerges in a family member such as a spinal cord injury, a severe burn, or the management of a severely premature infant. Much work lies ahead, however, before most consumers can feel secure that competent sources of consultation are invariably available when needed.

Variations in medical care will undoubtedly endure for as long as such services are needed. It is not the existence of variations, though, but the response to them that is critical. We have begun to promote better decision-making by publishing data analyses like those on inguinal hernia in this issue. We believe that the private sector, with its wide array of tools for marketing, communicating, and organizing innovative health care systems, can increasingly light the way for consumers as improvement in health care is sought for all. □

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# Regional Variations in Costs of Inguinal Hernia Operations

Inguinal hernia repairs have ranked among the top 10 most frequently performed surgical procedures for more than a decade. While the number and rate of these operations have been decreasing in the United States, they remain the second most common surgery performed on the digestive system and the leading major surgical procedure among men nationwide. In 1985, 416,000 inguinal hernia repairs were performed on patients in short-stay hospitals across the country, producing a rate of 175.4 per 100,000 population; men accounted for 89 percent of the total surgeries. Under the age of 15 the rate is 102.1; the rate drops to 95.2 per 100,000 among all 15-44-year-olds and climbs thereafter.[1,2]

Single-day and outpatient hernia surgeries are gaining in popularity. These procedures are not only a cost saving measure, advocates also claim they actually speed recovery. "Two-thirds of all Blue Cross/Blue Shield plans already specify certain procedures that must be performed on an outpatient basis ... and most of these lists include simple hernia repair. Medicare patients with hernias now must be treated as outpatients in some 30 states unless their physicians can make a strong, documentable case for hospitalization."[3] If the medical condition warrants it, one-day hernia surgery may be the answer. If not, knowledge of the following study of the geographic variation in costs for routine hernia repair should be of interest.

The study group consisted of 2,543 typical* inguinal hernia repair operations performed between March 1, 1985, and February 28, 1986, on employees of companies insured under group health contracts by Metropolitan Life Insurance Company. The charges described represent average billed amounts for the hospital stay and surgical and other physicians' fees (excluding anesthesiologists and radiologists) for CPT-4 codes 49500-49535.† Charges for other medical care (e.g., aftercare or tests conducted outside the hospital) are not included in the data. Presentation of the results will be restricted to those 14 states in which at least 65 inguinal hernia repairs were performed; these data represent 69 percent of the reported cases.

In line with national data, the vast majority, 88 percent, of the hernia repairs in the study were performed on men. Women were younger at the time of the operation, with a median age of 36 years versus 47 for men.

The average total charge for an inguinal hernia repair was $3,720 with considerable variation between regions of the United States.

Over half of the hernia operations were performed in three of the nine divisions of the country (Table 1). The largest proportion of the cases (21 percent) was from the East North Central area; the South Atlantic states contributed 20 percent to the total and the West South Central area, 15 percent. Only 5 percent of the surgeries were performed in the New England states.

## Regional Variation in Costs

The average total charge for an inguinal hernia repair was $3,720, with considerable variation between regions of the United States

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*"Typical" surgeries are those that fall within 972 percent of the usual length-of-stay criteria for the diagnosis related group (DRG) code

†CPT-4 – Physician's Current Procedural Terminology – Fourth Edition

(see accompanying Figure). The highest amount was recorded in the Pacific division with costs 55 percent above the average—amounts that principally reflect the charges reported in California. Second highest (26 percent above the norm) were those charges recorded in the Mountain states. Within this division, Colorado led in costs ($7,970, data not shown) for the 51 hernia surgeries performed there over the year. Only one other division had an average charge above the U.S. total, namely, the East North Central states, where the charge was 3 percent more. The remaining two-thirds of the geographic divisions reported charges below the average. The lowest amount ($3,070) was recorded in the East South Central area, with a charge 17 percent lower than the average for the country and 47 percent below that in the Pacific division.

## Cost Variation by State

Substantial differences in average total costs were evident across the states (Table 2). Among the 14 states in the study, the charges reported in California ($5,990) and those in Wisconsin ($2,630) represent the two extremes. The California charges were more than twice those in Wisconsin and 61 percent higher than the U.S. average. The second

> Among the 14 states studied, charges reported in California ($5,990) and those in Wisconsin ($2,630) represent the two extremes.

## Table 1—Geographic Distribution of Inguinal Hernia Surgeries for Persons Insured by Metropolitan Life Insurance Company March 1, 1985-February 28, 1986

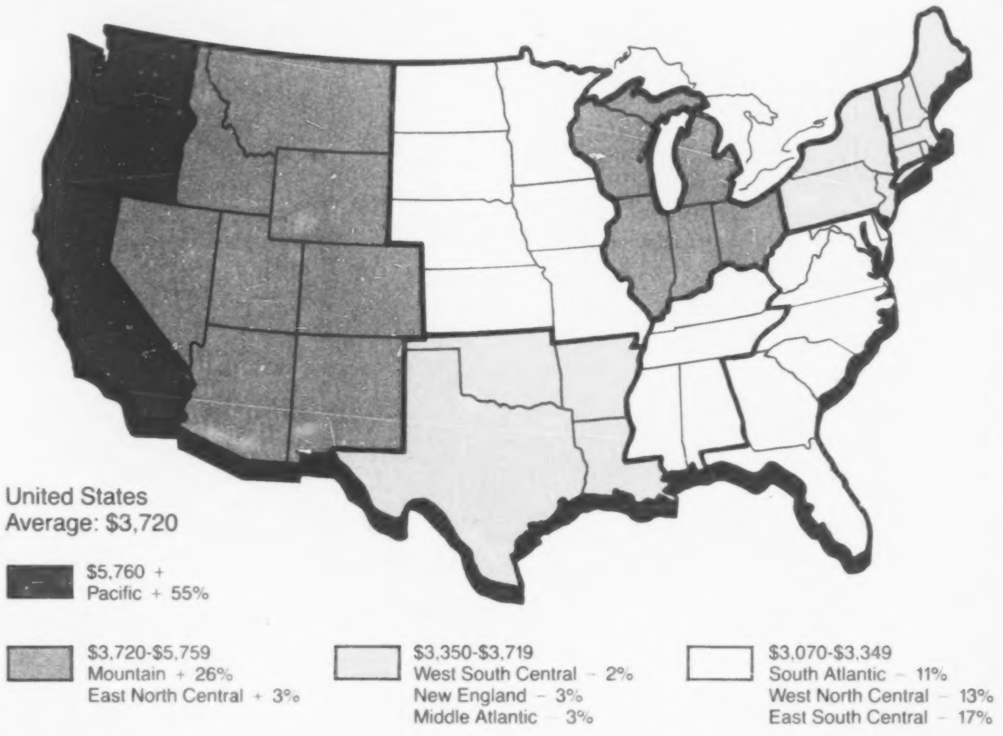
| | Number | Percent |
|---|---|---|
| United States | 2,543 | 100.0 |
| New England | 126 | 5.0 |
| Maine | 18 | .7 |
| New Hampshire | 10 | .4 |
| Vermont | 15 | .6 |
| Massachusetts | 29 | 1.2 |
| Rhode Island | 5 | .2 |
| Connecticut | 49 | 1.9 |
| Middle Atlantic | 263 | 10.3 |
| New York | 119 | 4.7 |
| New Jersey | 53 | 2.1 |
| Pennsylvania | 91 | 3.5 |
| East North Central | 544 | 21.4 |
| Ohio | 140 | 5.5 |
| Indiana | 111 | 4.4 |
| Illinois | 168 | 6.6 |
| Michigan | 23 | .9 |
| Wisconsin | 102 | 4.0 |
| West North Central | 146 | 5.7 |
| Minnesota | 23 | .9 |
| Iowa | 30 | 1.2 |
| Missouri | 69 | 2.7 |
| North Dakota | 4 | .2 |
| South Dakota | — | — |
| Nebraska | 6 | .2 |
| Kansas | 14 | .5 |
| South Atlantic | 516 | 20.3 |
| Delaware | 10 | .4 |
| Maryland | 39 | 1.5 |
| District of Columbia | 7 | .3 |
| Virginia | 46 | 1.8 |
| West Virginia | 8 | .3 |
| North Carolina | 112 | 4.4 |
| South Carolina | 47 | 1.9 |
| Georgia | 77 | 3.0 |
| Florida | 170 | 6.7 |
| East South Central | 248 | 9.8 |
| Kentucky | 92 | 3.6 |
| Tennessee | 81 | 3.2 |
| Alabama | 53 | 2.1 |
| Mississippi | 22 | .9 |
| West South Central | 385 | 15.1 |
| Arkansas | 23 | .9 |
| Louisiana | 51 | 2.0 |
| Oklahoma | 42 | 1.6 |
| Texas | 269 | 10.6 |
| Mountain | 154 | 6.1 |
| Montana | 3 | .1 |
| Idaho | — | — |
| Wyoming | 5 | .2 |
| Colorado | 51 | 2.0 |
| New Mexico | 10 | .4 |
| Arizona | 21 | .8 |
| Utah | 58 | 2.3 |
| Nevada | 6 | .3 |
| Pacific | 161 | 6.3 |
| Washington | 4 | .1 |
| Oregon | 7 | .3 |
| California | 148 | 5.8 |
| Alaska | — | — |
| Hawaii | 2 | .1 |

Source of Basic Data: Corporate Health Strategies, Inc., a subsidiary of Metropolitan Life Insurance Company; computations by Health and Safety Education Division.

highest average charge was reported in Illinois, with total costs 26 percent above that for the country as a whole. Florida reported costs 9 percent above the national average.

In addition to Wisconsin, four other states, Indiana, North Carolina, Ohio and Tennessee, registered total charges between 29 and 22 percent below the average. It is interesting to note that charges should vary so much between two contiguous states; the costs in Illinois were 67 percent higher than the costs in Indiana, $4,670 and $2,790, respectively.

**Inguinal Hernia Surgery Charges by Geographic Area March 1, 1985-February 28, 1986**


United States
Average: $3,720
$5,760 +
Pacific + 55%
$3,720-$5,759
Mountain + 26%
East North Central + 3%
$3,350-$3,719
West South Central - 2%
New England - 3%
Middle Atlantic - 3%
$3,070-$3,349
South Atlantic - 11%
West North Central - 13%
East South Central - 17%

Source: See Table 2

## Physician Charges

Physician charges (medical and surgical) accounted for more than one-third of the total costs for a hernia repair and averaged $1,250 across the country. This proportion of the health care dollar ranged from a low of 28 percent of all expenses incurred for this procedure in the Mountain states to a high of 42 percent in the Middle Atlantic states.

By geographic area, the Pacific states reported physician charges 60 percent above the U.S. average, and the Middle Atlantic states had charges 21 percent above. The doctors' charges in the West South Central and Mountain areas exceeded the national average by 6 and 3 percent, respectively.

By state, physician fees varied by as much as 149 percent. The highest cost was found in California, with reported charges of $2,070, an amount 66 percent above the norm. This high was followed by the physician costs in New York, where the charges averaged 42 percent above the norm. Florida, Illinois and Texas also had costs in excess of the U.S. average, 25, 14, and 13 percent above, respectively. The lowest doctors' fee ($830) was reported in North Carolina—34 percent below the national total. Similarly low charges were registered in Tennessee, Wisconsin and Indiana, where the costs were between 26 and 20 percent below the average charges.

The lowest doctors' fee ($830) was reported in North Carolina — 34 percent below the national total.

## Hospital Charges

Hospital charges, including room and board and ancillary services fees, averaged $2,470 and represented 66 percent of the total health insurance costs for an inguinal hernia operation. These charges varied by as much as 133 percent between states. California led in hospital costs with charges 59 percent above the average; Illinois reported the second highest hospital charges, $3,240 or 31 percent above the total. In contrast to these high costs, hospital charges in Wisconsin, Indiana, Ohio, and New York were between 32 and 22 percent below the national figures.

In New York, ancillary services charges were the lowest of the 14 states — 35 percent below the U.S. total.

Ancillary services accounted for 71 percent of the total hospital billings. Geographically, these charges typically ran around 2 or 3 times the costs of room and board. Wide variations in these charges were evident between states. In New York, ancillary services were the lowest of the 14 states (35 percent below the U.S. total) and were close to 1.5 times the room and board charges. The highest charge was once again registered in California ($2,620). This amount was twice the room and board costs and 130 percent above the New York fees for ancillary services.

## Table 2—Average Charges of Inguinal Hernia Surgeries by Region and State for Persons Insured by Metropolitan Life Insurance Company March 1, 1985—February 28, 1986

| | Average Costs ($) | | | | | Average Length of Stay | Percentage | |
|---|---|---|---|---|---|---|---|---|
| | Total Hospital & Physician | Hospital Charge | | | Physician Charge | | Ancillary of Total Hospital | Physician of Total Costs |
| **Geographic Area** | | Total | Ancillary Services | Room & Board | | | | |
| United States | 3,720 | 2,470 | 1,750 | 720 | 1,250 | 3.47 | 71 | 34 |
| New England | 3,610 | 2,460 | 1,680 | 780 | 1,150 | 3.21 | 68 | 32 |
| Middle Atlantic | 3,600 | 2,090 | 1,320 | 770 | 1,510 | 3.24 | 63 | 42 |
| New York | 3,700 | 1,920 | 1,140 | 780 | 1,780 | 3.41 | 59 | 48 |
| Pennsylvania | 3,760 | 2,560 | 1,750 | 810 | 1,200 | 2.85 | 68 | 32 |
| East North Central | 3,820 | 2,680 | 1,900 | 780 | 1,140 | 3.63 | 71 | 30 |
| Illinois | 4,670 | 3,240 | 2,030 | 1,210 | 1,430 | 4.47 | 63 | 31 |
| Indiana | 2,790 | 1,790 | 1,210 | 580 | 1,000 | 3.44 | 68 | 36 |
| Ohio | 2,880 | 1,850 | 1,310 | 540 | 1,030 | 2.58 | 71 | 36 |
| Wisconsin | 2,630 | 1,680 | 1,200 | 480 | 950 | 2.81 | 71 | 36 |
| West North Central | 3,230 | 2,200 | 1,540 | 660 | 1,030 | 3.51 | 70 | 32 |
| Missouri | 3,660 | 2,590 | 1,810 | 780 | 1,070 | 4.06 | 70 | 29 |
| South Atlantic | 3,320 | 2,170 | 1,610 | 560 | 1,150 | 3.35 | 74 | 35 |
| Florida | 4,070 | 2,510 | 1,900 | 610 | 1,560 | 3.17 | 76 | 38 |
| Georgia | 3,710 | 2,550 | 1,860 | 690 | 1,160 | 4.36 | 73 | 31 |
| North Carolina | 2,850 | 2,020 | 1,500 | 520 | 830 | 3.57 | 74 | 29 |
| East South Central | 3,070 | 2,060 | 1,490 | 570 | 1,010 | 3.47 | 72 | 33 |
| Kentucky | 3,380 | 2,260 | 1,520 | 740 | 1,120 | 3.64 | 67 | 33 |
| Tennessee | 2,910 | 1,990 | 1,450 | 540 | 920 | 3.67 | 73 | 32 |
| West South Central | 3,650 | 2,320 | 1,670 | 650 | 1,330 | 3.74 | 72 | 36 |
| Texas | 3,870 | 2,460 | 1,760 | 700 | 1,410 | 3.87 | 72 | 36 |
| Mountain | 4,670 | 3,380 | 2,610 | 770 | 1,290 | 3.66 | 77 | 28 |
| Pacific | 5,760 | 3,760 | 2,520 | 1,240 | 2,000 | 3.06 | 67 | 35 |
| California | 5,990 | 3,920 | 2,620 | 1,300 | 2,070 | 3.15 | 67 | 35 |

Source of Basic Data: Corporate Health Strategies, Inc., a Subsidiary of Metropolitan Life Insurance Company; computations by Health and Safety Education Division.

## Length of Stay/Room and Board

On average, patients remained in the hospital 3.47 days. Illinois reported the longest hospitalizations (4.47 days) and this is reflected in the elevated room and board charge—the charge of $1,210 is 68 percent above the U.S. average. Patients in Georgia and Missouri also remained in the hospital more than four days, but the corresponding room and board charges were 4 percent below and 8 percent above the national average of $720, respectively. The shortest hospital stays (under three days) were reported in Ohio, Wisconsin and Pennsylvania. Except for the room and board charges in Pennsylvania, which were 13 percent above the national average, these shorter stays were reflected in room and board fees 25 and 33 percent below the norm.

The shortest hospital stays (under three days) were reported in Ohio, Wisconsin and Pennsylvania.

The described regional variation in costs for inguinal hernia surgeries tends to follow the pattern seen for other common surgical procedures, i.e., higher costs in the Pacific area and lower costs in the South. Whether or not these cost differentials reflect prevailing medical practices of an area, malpractice insurance premiums, varying socio-economic conditions or patient characteristics are questions that need our continued attention.

An equally important consideration, however, is the justification for this or any surgery and the possibility that uncomplicated inguinal hernias can be treated on an outpatient or short-stay basis. The potential cost saving will be considerable as more physicians and patients become aware of alternate treatment regimens for a simple inguinal hernia repair. ☐

## References

[1] National Center for Health Statistics. "1985 Summary, National Hospital Discharge Survey." *Advance Data from Vital and Health Statistics* No. 127 DHHS Pub. No. (PHS) 86-1250. Public Health Service. Hyattsville, Md., Sept. 25, 1986.

[2] National Center for Health Statistics. "Utilization of short-stay hospitals by Diagnosis-Related Groups. United States, 1980-1984." *Vital and Health Statistics* DHHS Pub. No. (PHS) 86-1748. Public Health Service. Hyattsville, Md., July, 1986.

[3] McGrath, A. "Hernia today, gone tomorrow." *Forbes* 126-130, September 9, 1985.

# Pneumonia and Influenza Mortality on the Increase

There were more deaths from pneumonia and influenza in the United States last year than in any year since 1969. Moreover, gradually and without any fanfare, the mortality toll from these infectious diseases has steadily risen for four consecutive years. Estimates for 1986 prepared by Metropolitan statisticians indicate the number of persons dying from these diseases was slightly greater than the 1985 provisional count of 66,630 deaths.

## Multiple Influenza Outbreaks

The increase during 1986 is attributed to two separate influenza outbreaks. In the latter part of last year the population was subjected to four instead of the usual three influenza viruses. Health officials identified the additional virus as a recurrence of the Taiwan strain; it had not been active since the mid-1950s. The other contributing factor was the carryover from the 1985-86 influenza B epidemic. It did not peak until February 1986 and was the largest outbreak of its type in the United States since the 1968-69 season.[1] By comparison, mortality from pneumonia and influenza accounted for 58,894 deaths in 1984 and 55,854 deaths in 1983. During 1982, a year without any major flu outbreaks, 48,886 persons died from pneumonia and influenza. Thus, between 1982 and 1986 mortality from these causes has risen by about 40 percent.

> Between 1982 and 1986 mortality from pneumonia and influenza has risen by about 40 percent.

There has been a slow but steady increase in the age-adjusted mortality rates from pneumonia and influenza since the record low figure experienced in 1982. At that time, the death rate was 10.9 per 100,000 population. In 1984, the last year for which final data are available, the age-adjusted mortality rate had climbed to 12.2 per 100,000. During 1985 the provisional rate was 13.2 per 100,000.

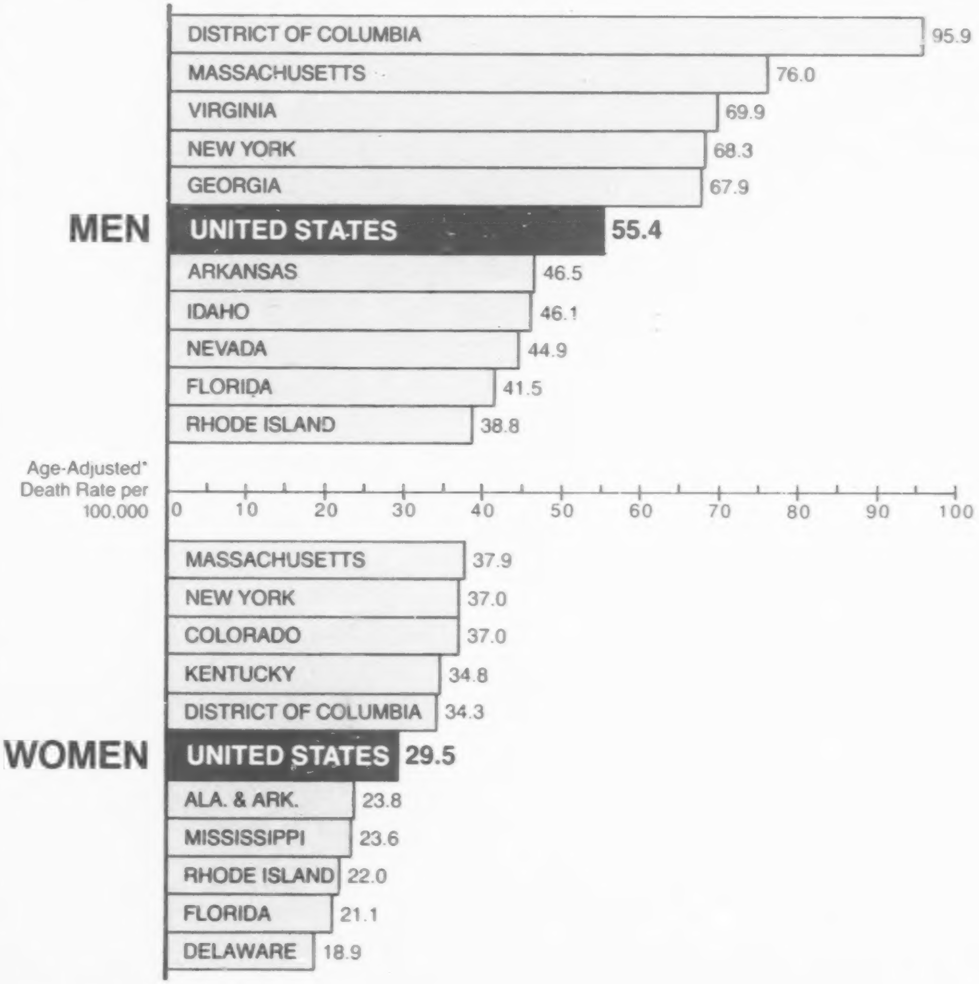
## Signs and Symptoms

Influenza is an acute viral respiratory disease and usually occurs as an epidemic in the late fall or early winter. Typical influenza illness is characterized by an abrupt onset of fever, sore throat, and nonproductive cough.[2] Although most cases are mild and self-limiting, severe illness can occur if viral pneumonia develops or from a secondary bacterial pneumonia. It should be pointed out that whereas mortality from pneumonia and influenza is usually discussed as a single entity, the number of deaths attributed to pneumonia usually accounts for virtually all of the fatalities in this category.

## Age and Sex Differences

Influenza occurs among all persons, but its impact is greatest in the very young, the infirm, and the elderly.[3] Additionally, mortality from pneumonia and influenza is generally higher among males than among females. During 1984 the age-adjusted death rate from pneumonia and influenza for males was 16.7 per 100,000, or more than four-fifths greater than the 9.1 per 100,000 rate for females. The fatality rate at ages under 5 was around 5 per 100 000 for both boys and girls. This level of mortality was not exceeded by men until ages 45-54 and for women until ages 55-64. Thereafter, the death rates for both groups rose steeply. By ages 75 and over, the mortality rates from these infectious diseases were 472 per 100,000 for men and 318 per 100,000 for women. Details of the age-specific death rates beginning with 1970 are shown in Table 1. A brief review of the history of influenza emphasizing the past major epidemics, including the 1918-19 pandemic, was presented in a 1976 issue of the *Statistical Bulletin*.[4]

**States with Highest and Lowest Mortality from Pneumonia and Influenza Population Aged 45 and Over, by Sex United States, 1979-81**



*Adjusted on basis of age distribution of the U.S. total population, 1940.
Source of data: Tables 2 and 3.

## Table 1—Mortality From Pneumonia and Influenza, by Age and Sex United States, 1970 to 1984

| | Death Rate per 100,000 | | | | |
|---|---|---|---|---|---|
| Age | 1970 | 1975 | 1980 | 1982 | 1984 |
| **BOTH SEXES** | | | | | |
| All Ages* | 22.1 | 16.6 | 12.9 | 10.9 | 12.2 |
| Under 5 | 42.8 | 17.2 | 7.8 | 5.7 | 5.0 |
| 5-14 | 1.6 | 1.0 | .6 | .4 | .5 |
| 15-24 | 2.4 | 1.7 | .8 | .7 | .6 |
| 25-34 | 3.8 | 2.5 | 1.5 | 1.4 | 1.6 |
| 35-44 | 8.5 | 5.3 | 3.5 | 2.8 | 3.0 |
| 45-54 | 17.3 | 11.1 | 7.7 | 6.5 | 6.6 |
| 55-64 | 36.2 | 27.0 | 18.6 | 16.4 | 16.8 |
| 65-74 | 90.2 | 70.2 | 55.6 | 47.6 | 53.7 |
| 75 and over | 380.1 | 377.3 | 369.6 | 312.2 | 371.8 |
| **MALE** | | | | | |
| All Ages* | 3.8 | 22.5 | 17.4 | 15.2 | 16.7 |
| Under 5 | 48.2 | 18.5 | 8.9 | 6.3 | 5.5 |
| 5-14 | 1.6 | .9 | .5 | .5 | .5 |
| 15-24 | 2.8 | 2.1 | .8 | .9 | .7 |
| 25-34 | 4.5 | 2.8 | 1.8 | 1.8 | 2.0 |
| 35-44 | 10.4 | 6.5 | 4.5 | 3.5 | 4.0 |
| 45-54 | 22.6 | 15.2 | 10.6 | 8.8 | 8.8 |
| 55-64 | 50.2 | 37.5 | 25.6 | 22.7 | 23.7 |
| 65-74 | 129.9 | 102.1 | 79.1 | 68.8 | 76.2 |
| 75 and over | 482.5 | 502.1 | 466.4 | 412.1 | 471.6 |
| **FEMALE** | | | | | |
| All Ages* | 16.7 | 12.3 | 9.8 | 8.0 | 9.1 |
| Under 5 | 37.2 | 15.8 | 6.7 | 5.1 | 4.5 |
| 5-14 | 1.6 | 1.0 | .6 | .4 | .5 |
| 15-24 | 2.1 | 1.4 | .8 | .6 | .5 |
| 25-34 | 3.2 | 2.2 | 1.2 | 1.1 | 1.2 |
| 35-44 | 6.6 | 4.2 | 2.6 | 2.0 | 2.1 |
| 45-54 | 12.3 | 7.4 | 5.1 | 4.4 | 4.6 |
| 55-64 | 23.6 | 17.6 | 12.5 | 10.8 | 10.7 |
| 65-74 | 59.3 | 45.7 | 37.6 | 31.2 | 36.1 |
| 75 and over | 314.5 | 304.3 | 316.1 | 257.7 | 317.6 |

*Adjusted on basis of age distribution of the United States total population, 1940.
Source of basic data: Various reports of Division of Vital Statistics, National Center for Health Statistics.

## Regional Variations

Influenza outbreaks occur every year in the United States. However, the incidence and geographic extent of the disease vary annually and, moreover, are seldom uniformly distributed throughout the nation. Utilizing the 1980 Census of Population and the deaths that occurred during the three-year period 1979-81, Metropolitan Life statisticians prepared a regional analysis of the mortality from pneumonia and influenza.* In this study, the deaths are those assigned to the International Classification of Diseases, Ninth Revision, Codes 480-487. Rates are reported for all races

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*This is the eighth study in the current series of regional analyses of causes of death, which began in the Oct-Dec 1985 issue.

# Table 2—Mortality From Pneumonia and Influenza Among Men Aged 45 and Over United States, 1979-81

| Area | Ages 45 & Over* | Ages 45-54 | Ages 55-64 | Ages 65-74 | Ages 75-84 | Ages 85 & Over |
|---|---|---|---|---|---|---|
| | Death Rates per 100,000 | | | | | |
| UNITED STATES | 55.4 | 10.0 | 24.7 | 75.0 | 289.7 | 1066.8 |
| NEW ENGLAND | 62.6 | 9.9 | 24.2 | 88.0 | 333.8 | 1276.3 |
| Maine | 52.5 | † | 27.1 | 73.3 | 285.3 | 943.0 |
| New Hampshire | 52.7 | † | 23.4 | 63.8 | 272.4 | 1162.9 |
| Vermont | 53.6 | † | † | 89.8 | 297.5 | 1214.4 |
| Massachusetts | 76.0 | 14.5 | 31.3 | 107.9 | 391.3 | 1460.5 |
| Rhode Island | 38.8 | † | † | 48.9 | 223.6 | 931.7 |
| Connecticut | 53.7 | 5.5 | 17.3 | 76.6 | 303.1 | 1195.9 |
| MIDDLE ATLANTIC | 58.4 | 10.9 | 25.8 | 79.8 | 312.2 | 1061.4 |
| New York | 68.3 | 12.6 | 30.5 | 94.9 | 360.4 | 1245.4 |
| New Jersey | 50.6 | 10.7 | 22.7 | 68.6 | 260.8 | 923.9 |
| Pennsylvania | 48.7 | 8.6 | 21.3 | 65.7 | 270.4 | 862.8 |
| EAST NORTH CENTRAL | 52.9 | 8.5 | 23.5 | 72.4 | 283.9 | 1010.2 |
| Ohio | 52.5 | 8.8 | 22.8 | 72.7 | 280.4 | 996.1 |
| Indiana | 50.6 | 7.1 | 22.8 | 68.6 | 275.2 | 990.5 |
| Illinois | 56.5 | 10.2 | 27.1 | 80.4 | 287.2 | 1022.4 |
| Michigan | 50.2 | 8.3 | 20.9 | 67.6 | 274.3 | 974.7 |
| Wisconsin | 52.2 | 5.7 | 21.7 | 65.9 | 306.6 | 1081.6 |
| WEST NORTH CENTRAL | 53.5 | 6.4 | 19.3 | 68.6 | 306.2 | 1207.0 |
| Minnesota | 49.5 | 4.4 | 14.3 | 57.7 | 296.8 | 1299.3 |
| Iowa | 54.6 | 4.9 | 21.4 | 67.9 | 329.5 | 1180.4 |
| Missouri | 58.3 | 9.8 | 22.8 | 78.8 | 311.3 | 1207.9 |
| North Dakota | 55.1 | † | † | 68.1 | 315.7 | 1255.5 |
| South Dakota | 53.5 | † | † | 63.7 | 308.4 | 1350.4 |
| Nebraska | 51.5 | † | 22.0 | 70.0 | 281.4 | 1222.4 |
| Kansas | 49.4 | † | 18.0 | 65.3 | 295.1 | 1013.5 |
| SOUTH ATLANTIC | 54.8 | 13.5 | 30.4 | 75.5 | 252.7 | 916.6 |
| Delaware | 49.4 | † | † | 78.1 | 213.2 | 886.4 |
| Maryland | 49.2 | 9.3 | 20.0 | 62.3 | 262.1 | 1036.4 |
| District of Columbia | 95.9 | 53.5 | 61.0 | 105.3 | 334.8 | 1254.2 |
| Virginia | 69.9 | 13.0 | 34.9 | 102.1 | 351.6 | 1179.7 |
| West Virginia | 54.1 | 10.3 | 24.1 | 82.6 | 265.9 | 961.8 |
| North Carolina | 66.0 | 14.6 | 35.3 | 89.4 | 324.0 | 1125.6 |
| South Carolina | 64.6 | 16.9 | 38.6 | 91.1 | 286.7 | 991.8 |
| Georgia | 67.9 | 14.1 | 38.5 | 97.3 | 328.4 | 1067.6 |
| Florida | 41.5 | 12.0 | 24.0 | 54.8 | 181.9 | 689.3 |
| EAST SOUTH CENTRAL | 55.4 | 9.2 | 27.8 | 76.3 | 288.0 | 1003.6 |
| Kentucky | 62.9 | 10.3 | 30.0 | 85.8 | 343.7 | 1100.7 |
| Tennessee | 55.9 | 7.4 | 27.8 | 75.8 | 289.7 | 1121.7 |
| Alabama | 51.9 | 9.1 | 24.6 | 75.3 | 266.9 | 911.9 |
| Mississippi | 49.0 | 11.1 | 29.8 | 65.2 | 234.1 | 782.3 |
| WEST SOUTH CENTRAL | 52.1 | 10.7 | 23.6 | 71.1 | 267.9 | 958.4 |
| Arkansas | 46.5 | 6.8 | 22.0 | 70.8 | 219.2 | 945.4 |
| Louisiana | 49.1 | 13.2 | 25.2 | 67.9 | 240.3 | 745.6 |
| Oklahoma | 56.2 | 8.1 | 22.7 | 74.5 | 302.9 | 1211.8 |
| Texas | 52.8 | 11.2 | 23.6 | 71.3 | 277.5 | 943.5 |
| MOUNTAIN | 56.0 | 9.0 | 23.1 | 71.9 | 296.0 | 1231.9 |
| Montana | 52.0 | † | 19.0 | 79.6 | 272.1 | 1176.1 |
| Idaho | 46.1 | † | † | 52.5 | 279.7 | 1183.9 |
| Wyoming | 53.9 | † | † | 75.6 | 303.0 | 1151.3 |
| Colorado | 65.7 | 11.4 | 23.8 | 90.5 | 363.5 | 1297.1 |
| New Mexico | 53.4 | † | 19.5 | 67.2 | 251.0 | 1424.7 |
| Arizona | 57.7 | 11.2 | 30.6 | 65.7 | 305.4 | 1138.0 |
| Utah | 51.5 | † | 16.8 | 67.4 | 281.9 | 1273.1 |
| Nevada | 44.9 | † | 25.6 | 70.4 | 141.6 | 1107.4 |
| PACIFIC | 55.2 | 8.6 | 21.4 | 73.4 | 299.6 | 1167.5 |
| Washington | 49.0 | 6.3 | 14.8 | 63.7 | 275.1 | 1191.9 |
| Oregon | 54.1 | 7.3 | 16.4 | 74.8 | 296.2 | 1264.4 |
| California | 56.4 | 9.0 | 23.2 | 74.8 | 304.9 | 1156.7 |
| Alaska | † | † | † | † | † | † |
| Hawaii | 49.8 | † | 16.5 | 78.4 | 267.4 | 961.4 |

*Adjusted on basis of age distribution of the United States total population, 1940.

† Fewer than 20 deaths; rate not computed.

Source: Computed by the Health and Safety Education Division of the Metropolitan Life Insurance Company, based on data from the Division of Vital Statistics, National Center for Health Statistics.

combined and are presented, by sex, in 10-year age groupings from ages 45-54 to ages 85 and over. The death rates for ages 45 and over have been age-adjusted to take into account the differences in the age composition of state populations.

Death rates from pneumonia and influenza for men aged 45 and over averaged 55 per 100,000 for the nation as a whole during 1979-81. Interestingly enough, there were modest mortality differences between the highest and the lowest geographic divisions. The highest death rate occurred in the New England states—63 per 100,000 and the lowest rate—52 per 100,000—was recorded in the West South Central division. On the other hand, there were marked disparities among individual states. For example, in the District of Columbia the age-adjusted mortality rate from pneumonia and influenza was 96 per 100,000, or 2½ times greater than the mortality rate of 39 per 100,000 reported for Rhode Island. Of note is that neighboring Massachusetts experienced the second highest death rate—76 per 100,000. On the more favorable side, the death rate in Florida was just 42 per 100,000; and there were 12 other states in which the mortality rates were less than 50 per 100,000. Women aged 45 and over reported death rates from pneumonia and influenza during 1979-81 that were just about half that of men. Countrywide, the age-adjusted mortality rate was 30 per 100,000. Similar to the experience of men, the geographic variations in mortality rates for women were not very extensive—they ranged from a high of 33 per 100,000 in the New England and Mountain divisions to a low of 26 per 100,000 in the South Atlantic states. On a state-by-state basis, the variation in mortality rates among women was much narrower than among men. Women aged 45 and over residing in Massachusetts experienced the highest death rate—38 per 100,000—while those dwelling in Delaware reported a rate of 19 per 100,000. Women also recorded low mortality from pneumonia and influenza in Florida and Rhode Island, while in Mississippi, Alabama and Arkansas, the death rates were almost as favorable. The accompanying figure presents, by sex, the record of the states with the best and poorest mortality experience.

> There were modest mortality differences between the highest and the lowest geographic divisions.... There were marked disparities among individual states.

> During 1979-81, with the exception of the experiences at ages 75 and over, age-specific mortality rates from pneumonia and flu among men were at least twice as large as those among women.

## Age-Specific Rates

During 1979-81, with the exception of the experience at ages 75 and over, age-specific mortality rates from pneumonia and influenza among men were at least twice as large as those among women. For both men and women death rates rose rapidly with advance in age. Among men the death rates more than doubled between ages 45-54 and 55-64. In the three remaining age brackets, mortality rates were between three and four times the preceding group. At ages under 65, women experienced comparable mortality, but the increase was more rapid at the older ages.

Among individual states, mortality at ages 45-54 and even at ages 55-64 was, in general, relatively low. Death rates from pneumonia and influenza were not computed for women aged 45-54 in 25 states and for men in 17 states.

# Table 3—Mortality From Pneumonia and Influenza Among Women Aged 45 and Over United States, 1979-81

| | Death Rates per 100,000 | | | | | |
|---|---|---|---|---|---|---|
| Area | Ages 45 & Over* | Ages 45-54 | Ages 55-64 | Ages 65-74 | Ages 75-84 | Ages 85 & Over |
| UNITED STATES | 29.5 | 5.0 | 11.7 | 34.4 | 156.6 | 710.7 |
| NEW ENGLAND | 33.1 | 4.9 | 10.1 | 38.4 | 182.5 | 870.8 |
| Maine | 27.3 | † | † | 30.9 | 153.8 | 729.8 |
| New Hampshire | 33.8 | † | † | 37.0 | 187.5 | 960.1 |
| Vermont | 33.3 | † | † | † | 182.9 | 770.1 |
| Massachusetts | 37.9 | 5.5 | 12.5 | 45.0 | 208.7 | 959.7 |
| Rhode Island | 22.0 | † | † | 24.1 | 124.0 | 677.1 |
| Connecticut | 29.1 | 4.8 | 7.3 | 34.4 | 157.2 | 797.4 |
| MIDDLE ATLANTIC | 31.6 | 5.9 | 13.9 | 38.4 | 164.2 | 690.6 |
| New York | 37.0 | 7.1 | 16.7 | 45.5 | 187.7 | 807.7 |
| New Jersey | 27.5 | 5.1 | 12.6 | 32.5 | 143.1 | 601.5 |
| Pennsylvania | 26.3 | 4.8 | 11.0 | 31.9 | 141.1 | 566.7 |
| EAST NORTH CENTRAL | 27.4 | 4.3 | 10.9 | 34.0 | 146.1 | 629.7 |
| Ohio | 26.6 | 3.7 | 10.5 | 33.4 | 143.3 | 623.3 |
| Indiana | 27.0 | 4.8 | 11.0 | 33.5 | 142.2 | 598.7 |
| Illinois | 30.4 | 4.7 | 12.5 | 40.7 | 158.3 | 667.9 |
| Michigan | 26.1 | 4.1 | 11.0 | 30.5 | 140.8 | 602.2 |
| Wisconsin | 24.3 | 4.5 | 7.1 | 26.0 | 136.9 | 633.0 |
| WEST NORTH CENTRAL | 30.6 | 4.2 | 10.0 | 33.7 | 170.3 | 820.9 |
| Minnesota | 28.9 | † | 7.5 | 28.4 | 166.9 | 897.4 |
| Iowa | 31.0 | † | 9.3 | 33.1 | 186.6 | 834.5 |
| Missouri | 32.0 | 5.2 | 11.9 | 39.6 | 171.0 | 754.2 |
| North Dakota | 28.8 | † | † | 42.5 | 146.1 | 819.7 |
| South Dakota | 29.4 | † | † | 30.3 | 165.9 | 729.0 |
| Nebraska | 29.1 | † | † | 30.9 | 163.5 | 788.1 |
| Kansas | 31.0 | † | 13.2 | 30.0 | 164.8 | 858.4 |
| SOUTH ATLANTIC | 26.3 | 6.0 | 11.3 | 29.6 | 131.9 | 611.9 |
| Delaware | 18.9 | † | † | † | 128.2 | 390.6 |
| Maryland | 24.1 | 4.8 | 8.4 | 26.7 | 126.6 | 612.0 |
| District of Columbia | 34.3 | † | 25.2 | 41.9 | 131.0 | 647.6 |
| Virginia | 32.0 | 5.5 | 11.1 | 39.8 | 170.0 | 766.8 |
| West Virginia | 25.7 | † | 9.7 | 26.3 | 143.3 | 647.2 |
| North Carolina | 29.3 | 5.4 | 12.4 | 30.8 | 155.0 | 728.8 |
| South Carolina | 30.0 | 7.0 | 11.9 | 38.9 | 144.6 | 662.4 |
| Georgia | 32.6 | 7.6 | 14.5 | 38.6 | 165.0 | 692.4 |
| Florida | 21.1 | 6.3 | 10.1 | 22.7 | 97.9 | 462.2 |
| EAST SOUTH CENTRAL | 28.7 | 5.2 | 11.0 | 32.0 | 157.8 | 677.9 |
| Kentucky | 34.8 | 7.8 | 14.7 | 37.9 | 181.0 | 795.7 |
| Tennessee | 30.8 | 4.6 | 12.1 | 33.1 | 175.2 | 749.7 |
| Alabama | 23.8 | 4.4 | 7.5 | 26.4 | 141.8 | 542.2 |
| Mississippi | 23.6 | † | 9.0 | 30.6 | 116.0 | 577.7 |
| WEST SOUTH CENTRAL | 27.0 | 4.7 | 10.8 | 32.0 | 140.6 | 650.4 |
| Arkansas | 23.8 | † | 8.8 | 27.6 | 130.3 | 580.7 |
| Louisiana | 25.3 | 6.9 | 13.1 | 33.5 | 115.1 | 455.2 |
| Oklahoma | 31.1 | 5.4 | 9.9 | 35.5 | 174.9 | 762.5 |
| Texas | 27.0 | 4.0 | 10.7 | 31.6 | 140.5 | 685.0 |
| MOUNTAIN | 32.9 | 5.2 | 11.9 | 36.2 | 175.4 | 874.1 |
| Montana | 25.0 | † | † | 28.1 | 122.7 | 790.5 |
| Idaho | 32.7 | † | † | 41.7 | 157.0 | 980.4 |
| Wyoming | 31.7 | † | † | † | 132.4 | 718.1 |
| Colorado | 37.0 | 5.8 | 13.7 | 37.7 | 208.1 | 962.5 |
| New Mexico | 31.9 | † | † | 37.0 | 159.4 | 868.9 |
| Arizona | 31.7 | 5.1 | 12.6 | 30.2 | 180.1 | 817.2 |
| Utah | 32.8 | † | † | 42.2 | 171.3 | 844.6 |
| Nevada | 33.0 | † | † | 43.5 | 172.2 | 738.9 |
| PACIFIC | 32.2 | 4.3 | 12.9 | 37.3 | 175.3 | 797.8 |
| Washington | 30.2 | † | 11.8 | 31.8 | 166.2 | 864.4 |
| Oregon | 31.6 | † | 10.8 | 33.7 | 167.3 | 933.3 |
| California | 32.7 | 4.5 | 13.4 | 39.0 | 178.3 | 769.8 |
| Alaska | † | † | † | † | † | † |
| Hawaii | 27.7 | † | † | † | 157.2 | 732.4 |

*Adjusted on basis of age distribution of the United States total population, 1940.

† Fewer than 20 deaths; rate not computed.

Source: Computed by the Health and Safety Education Division of the Metropolitan Life Insurance Company, based on data from the Division of Vital Statistics, National Center for Health Statistics.

At ages 55-64 there were too few deaths to make death rates meaningful for women in 16 states and for men in eight states. Detailed age-specific death rates by state and sex are presented in Tables 2 and 3.

Analysis of mortality rates at ages 65 and over provides a valuable public health approach for examining geographic variations. Among men, those residing in Massachusetts had the dubious distinction of experiencing the highest mortality rates from pneumonia and influenza. Not far behind were the records for men aged 65-74 in the District of Columbia and Virginia, those aged 75-84 living in Colorado and Virginia and those 85 and over in New Mexico and South Dakota. On the other hand, relatively low death rates were reported for men 65-74 in Rhode Island, Idaho, Florida and Minnesota. At ages 75-84, mortality rates of less than 200 per 100,000 were experienced in Nevada and Florida and, in the next older age category, Florida again reported low mortality from pneumonia and influenza. Louisiana and Mississippi also had favorable experiences.

Among women aged 65 and over, the South Atlantic states as a group, and Florida in particular, experienced very favorable mortality from pneumonia and influenza. The most adverse experience occurred in the New England states (at ages 65-84) and the Mountain division (at ages 85 and over). In these two latter divisions, the poor records of Massachusetts and Colorado stood out. At ages 85 and over, women in Idaho and New Hampshire, as well as those in California, did not fare well, whereas women in Delaware and Louisiana experienced very low death rates.

## Influenza Advisories

Influenza, by itself, is usually a self-limiting disease. However, pneumonia and other respiratory diseases—the main complications associated with influenza—exact a heavy toll of lives. Persons suffering from chronic disorders, especially those with diabetes, emphysema, paralytic stroke and heart diseases, are particularly vulnerable. Every year the Immunization Practices Advisory Committee of the Centers for Disease Control issues its recommendations with regard to influenza. For the 1986-87 season, the committee stressed more vigorous use of control measures than in the past. Specifically, the advisory stated that immunizations of high-risk persons before an influenza season begins was the single most important precaution. Persons in high-risk groups should always consult their physicians and take appropriate measures in advance. ☐

> Persons with chronic disorders, especially those with diabetes, emphysema, paralytic stroke and heart diseases, are particularly vulnerable.

## References

[1] "Influenza—United States, 1985-1986 season." *Morbidity and Mortality Weekly Report*, 35(29) 470-79, 1986

[2] "Prevention and Control of Influenza." *Annals of Internal Medicine*, 103 560-565. Recommendation of the Immunization Practices Advisory Committee, Centers for Disease Control, U.S. Department of Health and Human Services

[3] *The Merck Manual of Diagnosis and Therapy*. Robert Berkow, M.D. (Editor-in-Chief) Rahway, N.J. Merck Sharp & Dohme Research Laboratories, 1982

[4] "Mortality from influenza and pneumonia." *Statistical Bulletin*, 2-7, September 1976

# Capsule Briefs

are timely literature selections with broad reader interest

## Focus on Mental Health Insurance Issues

### Rising Charges, Shrinking Benefits

The woes of mental illness today include the costs for its care. For instance, in 1983 the estimated cost of treating mental illness in the United States exceeded $73 billion (up 35 percent from 1980). Notably, the average charges to payers for a single 1985 mental health hospital admission were $8,036, double those for all other medical diagnoses. Another facet of this growth: since 1981 the estimated number of mental health professionals has risen from 50,000 to over 250,000. (**Business Insurance**, September 1986.) ••••• The patient seems to be squeezed between rapidly rising costs and benefit plans that are no longer tolerant of open-ended commitments to pay for a decade of therapy from any "mental health professional." (**Time**, March 5, 1984, p. 48.) ••••• In another article, an insurance company spokesperson put it this way, "Companies with liberal benefit plans realize that their dollars are not being spent wisely." (**Business Insurance**, September 29, 1986.) ••••• One observer recently put it quite baldly, "Psychiatric care is obviously out of control." (**New York Times**, October 7, 1986, D2.) ••••• What can employers do? In response, they have changed their employee benefits coverage. As this study from the staff of the American Psychiatric Association notes, while the extent of coverage is currently wide-ranging, it lacks depth. The majority of mental health care expenses are not insured: coverage is better for short-term and acute care, while longer term and catastrophic care are not well-covered. (Brady, J., et al, **Am. J. Psychiatry**, 143(10):1276-9, 1986.) ••••• What does all this mean? It may mean that with cost sharing, patients now bear more of the expense burden, which may, in turn, produce new sources of nervousness. Whether this situation persists may depend on employer recognition that abuse of mental health coverage is "primarily the result of poor benefit design." (Goldbeck, W. B., **The Psychiatric Hospital**, 13(3); cited from reprint 1985.) □

### How Does Benefit Design Affect Use of Services?

The Rand Study of 5,809 persons covering 19,819 person-years of data was a clinical trial of nonelderly persons' use of fee-for-service outpatient health insurance. It was found that low coinsurance rates (less out-of-pocket expense) caused significantly greater outpatient use of mental health services and that these services were more responsive to cost sharing than were medical services. For instance, patients receiving free care used 133 percent more mental health services than those who had to pay 95 percent of the fee. (Whereas, medical care use was only 69 percent higher in the "free" group.) The total use rate by those with free care was only 4 percent, however; and the annual expenditures per person were low—$32 among those whose care was free. (Manning, W. G., et al, **JAMA**, 256(14):1930-34, 1986.) ••••• In a companion editorial, another key question emerged: how does the benefit design affect the outcomes of mental health care? Studies are being done to estimate those outcomes, but the information is still some years away. (Borus, J. F., ibid, p. 1939.) On the outcome of care issue, anticipation of near future events may be best provided by St. Paul; i.e., "Looking through a glass darkly." □

### Is The "Need" Known?

Once upon a time (1963-78), there were 675 federally funded community mental health centers, which were established and pressed to assess the local need for their services. Despite rapid growth in recent years in expenditures for mental health treatment, virtually no consensus exists among providers or payers about the most fundamental questions concerning needs assessment, including definitions of need, methods for assessment or evaluation criteria for that process. (Rabkin, J. G., **Medical Care**, 24:1093-1109, 1986.) It seems reasonably obvious that "mental health needs" criteria and assessment methodology are basic for benefit design. If providers lack these competencies or resources, from where will the leadership for such assessment come? □

# Profile of the American Wife

Although she may currently be a doctor, a lawyer, a politician, a teacher, or another working woman, the American wife in 1987 has not relinquished many of her traditional roles. According to recent national data, she seems to continue to cherish the concept of marriage and family. A profile of some statistical characteristics of wives is presented in the accompanying table.

There were nearly 54½ million married women in the United States in March 1985—or almost three-fifths of all women aged 15 and over. Married women under 25 years of age represent almost one-fourth of all women in the age group but less than one-tenth of all wives. In the 25-29 age category, two-thirds of all women were married. Thereafter, the proportion married increased to around three-fourths and remained at that level through ages 55-64. At age 65 and over, because of increased widowhood, just two in five women were wives.

In 1985 there were nearly 54½ million married women in the U.S.—almost three-fifths of all women aged 15 and over.

The geographic distribution of married women conforms exactly with the distribution of women of all married statuses. For example, one-third of women aged 15 and over reside in the South—as do one-third of the wives. This region of the country is the place of residence of two-fifths of the married women under age 25 and one-third of those aged 25 or older. In the Midwest, with one-fourth of all married women, the percentage of wives in each of the two age groupings was also one-fourth. In the West the findings are consistent—the proportion is also uniform—namely, one-fifth. In the remaining geographic region—the Northeast—one-seventh of the married women were under 25 years of age and one-fifth of them aged 25 and over.

## Living Arrangements

The vast majority of married women live with their husband in their own household. Overall, this is the living arrangement of 93 percent of all wives; the proportion ranges from 84 percent for the youngest wives to as much as 95 percent for those aged 65 and over. Only 6 percent of the married couples live apart or reside with a nonrelative.

Living arrangements of married women have not changed significantly in the past decade. Marital discord is the most frequent reason for living apart, although in some cases, either spouse may be employed away from the home or be confined to an institution.

## Ages of Husband and Wife

Wives are usually a few years younger than their husband. According to the most recent data, where the wives are under 25 years of age, 46 percent of the spouses were in the same age group and 50 percent were in the 25-34 age category. Among married women aged 25-34, nearly 70 percent of the husbands were also in this age bracket with 26 percent of their spouses in the next higher 10-year age group. As the age of the wives increases through the next succeeding three age groupings, the percentages with husbands in the same or next highest age category did not significantly change from the values in the 25-34 age bracket. It is interesting to note that at ages 65 and

Nearly four-fifths of all wives have at least a high-school education, with one-seventh holding a college degree.

## Characteristics of Wives in the United States, March 1985

| | Age of Wife, in Years | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Characteristic | 15 and over | 15-24 | 25-29 | 30-34 | 35-44 | 45-54 | 55-64 | 65 and over |
| Wives — Number in thousands | 54,445 | 4,512 | 6,963 | 7,299 | 12,312 | 8,812 | 8,240 | 6,307 |
| — Percent distribution | 100.0 | 8.3 | 12.8 | 13.4 | 22.6 | 16.2 | 15.1 | 11.6 |
| — Percent of all women in age group | 57.1 | 23.1 | 65.2 | 73.1 | 77.1 | 76.3 | 70.0 | 39.9 |
| Race — percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| White | 89.1 | 90.3 | 88.6 | 87.3 | 87.8 | 88.3 | 90.7 | 92.4 |
| Nonwhite | 10.9 | 9.7 | 11.4 | 12.7 | 12.2 | 11.7 | 9.3 | 7.6 |
| Region — percent* | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Northeast | 20.5 | 13.5 | 17.5 | 20.2 | 21.3 | 22.0 | 22.6 | 22.4 |
| Midwest | 25.4 | 25.2 | 25.7 | 26.8 | 25.4 | 24.0 | 26.0 | 25.3 |
| South | 34.7 | 40.1 | 35.2 | 33.3 | 33.5 | 34.9 | 34.0 | 34.8 |
| West | 19.4 | 21.2 | 21.6 | 19.7 | 19.8 | 19.1 | 17.4 | 17.5 |
| Living arrangement — percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Living with husband in | 93.9 | 90.4 | 92.3 | 93.3 | 93.4 | 94.7 | 95.8 | 96.0 |
| Own household as | 92.5 | 84.4 | 90.4 | 91.9 | 92.8 | 94.3 | 94.7 | 95.1 |
| Wife | 87.6 | 79.5 | 84.9 | 85.9 | 87.7 | 90.1 | 90.5 | 90.9 |
| Householder | 4.9 | 4.9 | 5.5 | 6.0 | 5.1 | 4.2 | 4.2 | 4.2 |
| Relative's or nonrelative's household | 1.4 | 6.0 | 1.9 | 1.4 | .6 | .4 | 1.1 | .9 |
| Not living with husband | 6.1 | 9.6 | 7.7 | 6.7 | 6.6 | 5.3 | 4.2 | 4.0 |
| Householder | 4.6 | 4.0 | 4.8 | 5.3 | 5.7 | 4.4 | 3.6 | 3.4 |
| Not householder | 1.5 | 5.6 | 2.9 | 1.4 | .9 | .9 | .6 | .6 |
| Age of husband — percent* | 100.0 | 100.0 | 100.0 | | 100.0 | 100.0 | 100.0 | 100.0 |
| Under 25 | 4.4 | 46.2 | 2.4 | | .2 | ¶ | ¶ | ¶ |
| 25-34 | 23.2 | 50.0 | 69.2 | | 5.7 | .3 | ¶ | ¶ |
| 35-44 | 22.8 | 3.2 | 25.9 | | 67.1 | 4.7 | .2 | .1 |
| 45-54 | 16.9 | .4 | 2.0 | | 24.0 | 62.2 | 4.9 | .4 |
| 55-64 | 16.5 | .2 | .4 | | 2.7 | 30.2 | 64.7 | 6.9 |
| 65 and over | 16.2 | ¶ | .1 | | .3 | 2.6 | 30.2 | 92.6 |
| Educational attainment — percent | 100.0 | 100.0 | 100.0 | | 100.0 | | 100.0 | 100.0 |
| Less than one year of high school | 9.7 | 6.5 | 3.8 | | 7.1 | | 14.6 | 27.6 |
| One to three years of high school | 12.8 | 19.2 | 9.2 | | 11.3 | | 16.4 | 16.5 |
| Four years of high school | 45.3 | 51.0 | 44.3 | | 46.4 | | 47.7 | 36.2 |
| One to three years of college | 16.8 | 17.3 | 22.0 | | 17.0 | | 11.3 | 11.3 |
| Four years of college | 10.0 | 5.5 | 14.8 | | 10.6 | | 6.1 | 5.9 |
| Five or more years of college | 5.4 | .5 | 5.9 | | 7.6 | | 3.9 | 2.5 |
| Median school years completed | 12.6 | 12.5 | 12.8 | | 12.7 | | 12.4 | 12.2 |
| Labor force participation in 1986 — percent | 100.0† | 100.0† | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| In labor force | 55.0 | 62.0 | 67.1 | 66.2 | 69.4 | 62.5 | 38.3 | 7.0 |
| Not in labor force | 45.0 | 38.0 | 32.9 | 33.8 | 30.6 | 37.5 | 61.7 | 93.0 |
| Income in 1984 — percent | 100.0‡ | 100.0‡ | 100.0 | | | | | 100.0 |
| Under $4,000 | 36.2 | 40.9 | 35.2 | | | | | 39.6 |
| $ 4,000-$ 9,999 | 27.0 | 32.2 | 24.3 | | | | | 40.7 |
| $10,000-$14,999 | 15.1 | 17.6 | 15.7 | | | | | 9.9 |
| $15,000-$19,999 | 9.7 | 6.0 | 11.0 | | | | | 3.9 |
| $20,000-$24,999 | 5.8 | 2.3 | 6.6 | | | | | 2.7 |
| $25,000 and over | 6.2 | 1.0 | 7.2 | | | | | 3.2 |
| Median income | $6,655 | $5,458 | $7,365 | | | | | $4,870 |

*Excludes wives with spouse absent.

† Excludes wives under age 16.

‡ Excludes wives under age 18.

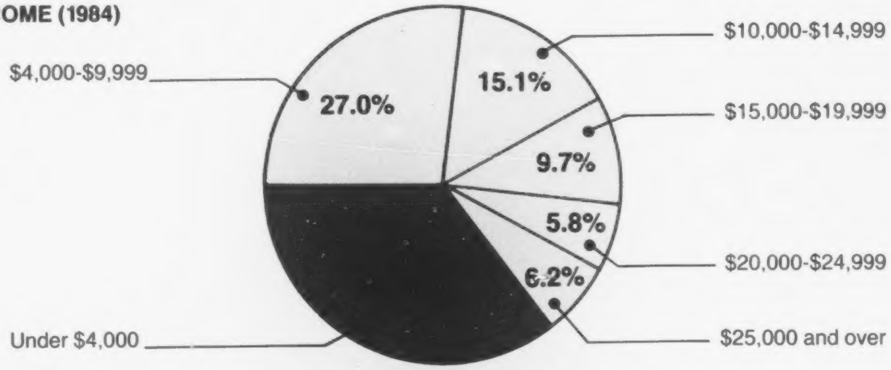
¶ Less than 0.05.

Note: Data relate to the civilian noninstitutionalized population.

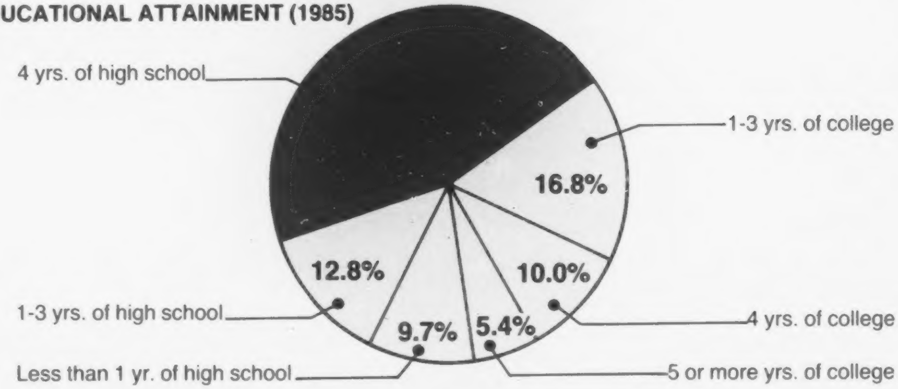
Source of basic data: Various reports of the Bureau of the Census and the Department of Labor.

## Selected Characteristics of Wives in the United States (Percent Distribution)

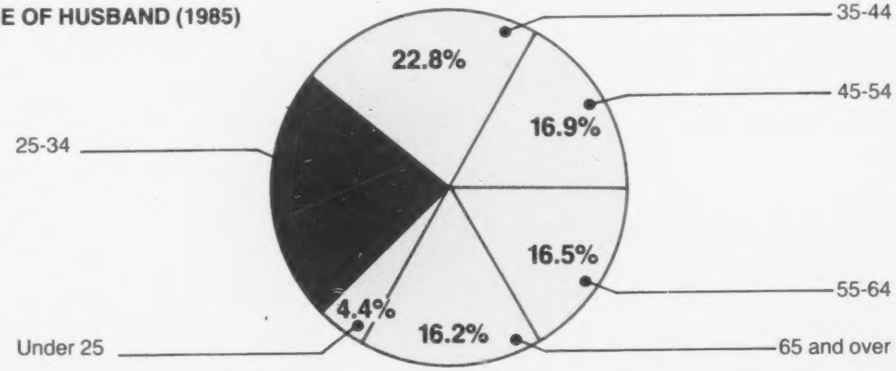
**INCOME (1984)**



**EDUCATIONAL ATTAINMENT (1985)**



**AGE OF HUSBAND (1985)**



Source: Table

over about 7½ percent of the wives have younger husbands.

## Educational Attainment Increasing

The value attached to a good education has increased over the years. This emphasis is reflected in the educational attainment of married women. Currently, nearly four-fifths of all wives have at least a high-school education, with over one-seventh holding a college degree. Among the youngest wives, just about one-fourth did not graduate from high-school, while the relative number with four years of high-school was over one half, and nearly one-fourth of the wives had some college training. At ages 25-34, over two-fifths of the married women had completed at least one year of college, whereas about one-eighth did not have a high-school degree. The proportion of married women with less than a high-school education increased with advance in age, reflecting the lower level of schooling in the past. Nonetheless, nearly one-fifth of the married women aged 35-54 had a college degree and the proportion was still one-tenth at ages 55-64.

In 1986 over 30 million wives—55 percent of all married women—were either employed or seeking work.

## Working Wives

One of the most significant post World War II social changes was the influx of married women into the labor force. In 1986 over 30 million wives—55 percent of all married women—were either employed or seeking work. At ages under 25, over three-fifths of the wives were in the labor force. At ages 25-44, the years when many women used to remain at home to take care of their children, the proportion in the labor force is somewhat higher—over two-thirds. Many married women return to work on either a part-time or full-time basis when their children enter school, when adequate child care facilities are available, when their children grow up or as economic necessity dictates. The impetus for this return can be attributed to their desire to resume their own careers or to maintain or achieve better life-styles. After age 45 the proportion of wives in the labor force gradually declines. Even so, at ages 55-64, nearly two-fifths of the married women were employed.

Along with the dramatic entry of wives into the work force has been their significant earnings rise.

Along with the dramatic entry of wives into the work force has been their significant earnings rise. In 1984, the latest data available, their median income approached $6,700. In that year more than 6 percent of the married women earned $25,000 or more—and 16 percent had between $15,000 and $25,000 of income. The accompanying figure presents the percentage distribution of earnings of married women as well as some of the other characteristics shown in the table. □

# Trends in Mortality From Uterine Cancer

Mortality from cancer of the uterus has been steadily declining in the United States for over 50 years. This form of malignant disease dropped from being the leading cause of cancer death among American women in the 1930s to the sixth ranked cause of such deaths in the 1980s.[1,2] The downward trend is due in large part to advanced early detection and treatment methods; also to the increasing proportion of women who have had a hysterectomy, which results in a decreasing risk of disease. This encouraging trend is evident among all regions of the United States, within almost all age groups and among white and nonwhite women.[3,4]

Uterine cancer mortality has dropped from being the leading cause of cancer death among American women in the 1930s to the sixth ranked cause of such deaths in the 1980s.

In 1987 an estimated 47,800 new cases of invasive uterine cancer will be diagnosed —12,800 of these will be found in the cervix and 35,000 in the body of the uterus (corpus uteri or endometrium). Approximately 10,000 deaths from uterine malignancy will occur this year, with cervical cancer deaths accounting for more than two-thirds of this total.[2]

The epidemiology of these cancers of the cervix and corpus uteri differs, and is well documented. Among the accepted risk factors for the former are early sexual activity, multiple sex partners, early and multiple pregnancies; cigarette smoking, use of oral contraceptives and a history of sexually transmitted diseases are currently also being implicated in the development of the disease.[5-8] Increased risk of carcinoma of the body of the uterus is associated with factors such as obesity, infertility, diabetes, late menopause, prolonged estrogen usage, and failure to ovulate. Cervix cancer usually strikes women during their reproductive years, while cancer of the corpus uteri occurs later and after menopause. The five-year survival rate is slightly better for endometrial disease.[9-13]

Cervix cancer usually strikes women during their reproductive years, while cancer of the corpus uteri occurs later and after menopause.

Because of the differences in these two forms of gynecologic cancers, the mortality rates and trends are being considered separately.

### Uterine Cancer Mortality

The mortality experiences of U.S. white and nonwhite women are presented independently between 1960 and 1984. Mortality rates are shown per 100,000 population in 10-year-age groupings for women between the ages of 25 and 74. Combined death rates (ages 25-74) have been age-adjusted by statisticians at Metropolitan Life Insurance Company. Rates for selected years plus percent change over the 25 years of review are shown in Table 1 for cancer of the cervix and Table 2 for cancer of the corpus uteri. Cancer of the cervix includes deaths assigned to International Classification of Diseases, Seventh Revision (ICD 7), Code 171 for the years 1960 and 1965, Code 180 (ICD 8) for

1970 and 1975 and Code 180 (ICD 9) for 1980 and beyond. Rates for cancer of the corpus uteri include ICD 7 Codes 172-174 for 1960 and 1965, ICD 8 Codes 181 and 182 for 1970 and 1975 and ICD 9 Codes 179, 181 and 182 for 1980 and 1984.

## Cancer of the Cervix

As seen in Table 1, cervical cancer mortality rates increase with age and are higher among nonwhite than white women. In 1984 the mortality rate for whites rose from 1.2 per 100,000 among women aged 25-34 to 8.5 among those aged 65-74. Among the nonwhites, the rates rose from 1.9 per 100,000 to 20.8 in the older women.

Since 1960 cervical cancer mortality rates have dropped by approximately two-thirds for white and all other women aged 25-74 (Figure A). Steady and similar proportionate decreases in the mortality experiences are evident between the years for both these

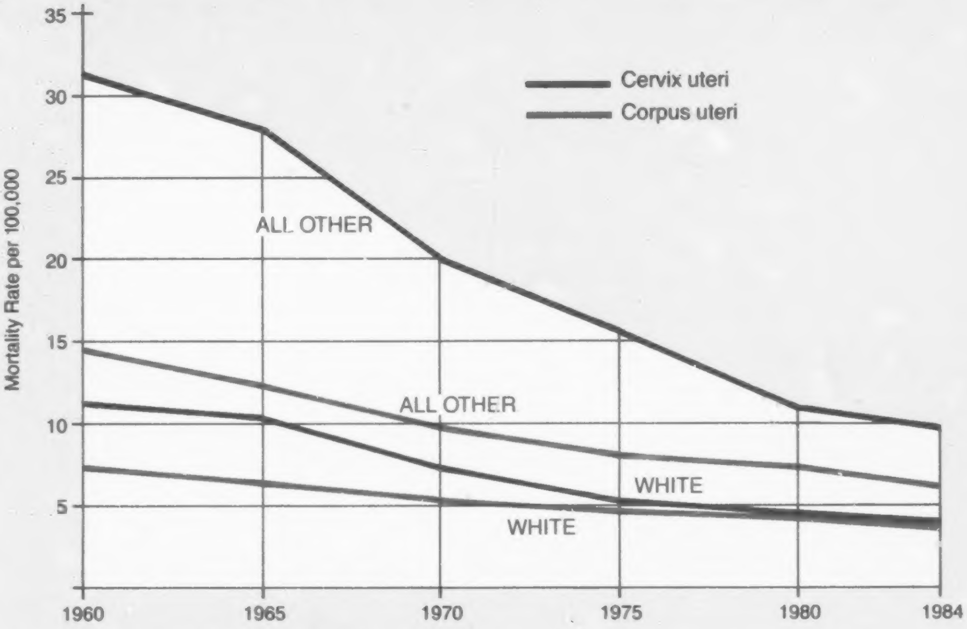
## Table 1 — Mortality From Cancer of Cervix Uteri Among Women Aged 25-74, by Age and Race United States, 1960 to 1984

| Age Group | Death Rate per 100,000<br>1960 | 1965 | 1970 | 1975 | 1980 | 1984 | Percent Decrease 1960 to 1984 |
|---|---|---|---|---|---|---|---|
| | | | | WHITE | | | |
| 25-74* | 12.2 | 10.7 | 7.8 | 5.8 | 4.7 | 4.2 | 65.6 |
| 25-34 | 2.7 | 2.7 | 1.8 | 1.2 | 1.2 | 1.2 | 55.6 |
| 35-44 | 9.5 | 8.5 | 5.8 | 4.3 | 3.5 | 3[illegible] | 64.2 |
| 45-54 | 17.1 | 14.9 | 11.2 | 7.9 | 5.9 | 5.1 | 70.2 |
| 55-64 | 21.0 | 17.7 | 12.9 | 10.6 | 8.4 | 7.4 | 64.8 |
| 65-74 | 25.5 | 22.5 | 16.6 | 12.4 | 10.3 | 8.5 | 66.7 |
| | | | | ALL OTHER | | | |
| 25-74* | 31.3 | 28.0 | 20.0 | 15.8 | 12.1 | 9.9 | 68.4 |
| 25-34 | 8.7 | 7.8 | 4.0 | 3.0 | 2.4 | 1.9 | 78.2 |
| 35-44 | 25.0 | 21.6 | 15.1 | 11.7 | 8.7 | 7.4 | 70.4 |
| 45-54 | 44.5 | 34.2 | 27.4 | 22.8 | 17.2 | 14.6 | 67.2 |
| 55-64 | 52.7 | 48.6 | 34.4 | 28.4 | 20.8 | 17.0 | 67.7 |
| 65-74 | 57.6 | 65.3 | 46.0 | 32.1 | 27.4 | 20.8 | 63.9 |

*Adjusted on basis of age distribution of the United States total population, 1940.

Source of basic data: Reports of the Division of Vital Statistics, National Center for Health Statistics and the Bureau of the Census.

**Figure A—Trend in Age-Adjusted Uterine Cancer Mortality Rates by Site and Race, Women Aged 25-74, United States, 1960 to 1984**



Source: Reports of the Division of Vital Statistics, National Center for Health Statistics and Bureau of the Census; computations by Health and Safety Education Division of the Metropolitan Life Insurance Company.

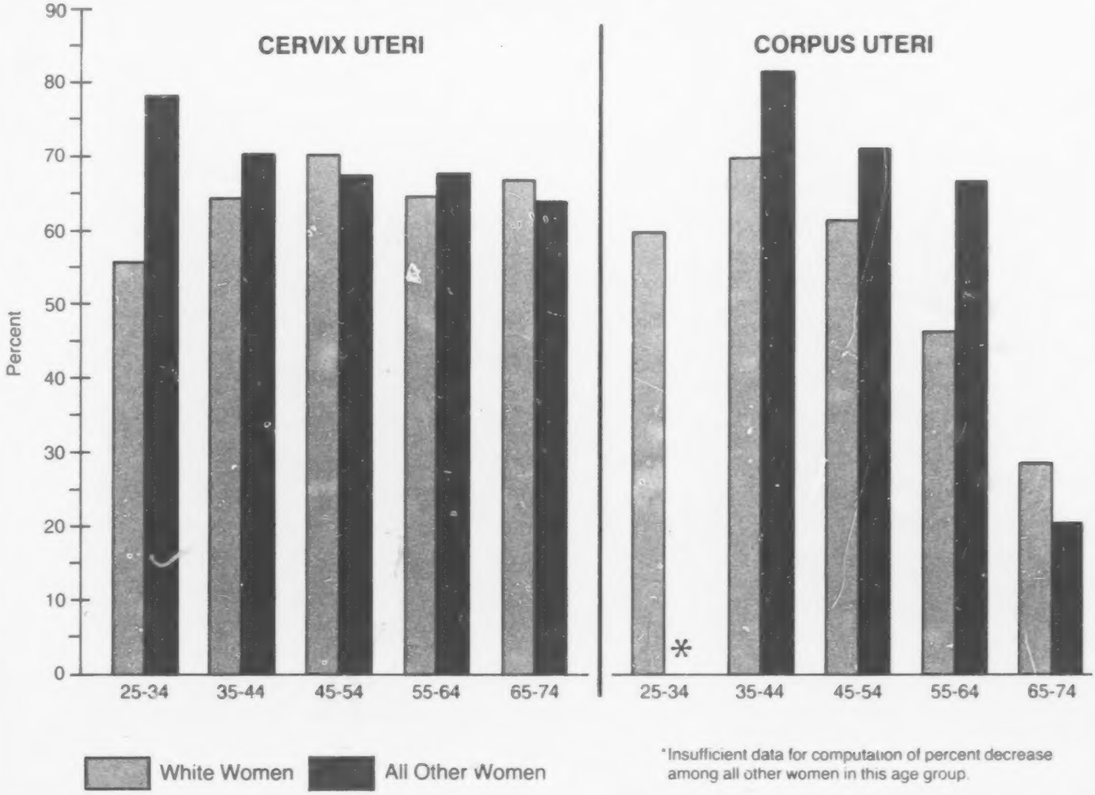
groups. The largest decrease was seen between 1965 and 1970 where rates dropped 27 percent for white women and 29 percent for all others. The greatest difference in the amount of decline was evident between 1980 and 1984 when age-adjusted mortality dropped 11 percent for whites aged 25-74 and 18 percent for all others in this age group.

Cervix cancer mortality rates are slowly converging for the two groups of women. In 1984 the rate for all nonwhites dropped below 2.5 times that of the whites. The overall decrease in the nonwhite total mortality rate is slightly more pronounced than that among the whites—68.4 percent and 65.6 percent, respectively.

Important differences between the two groups are apparent by age (Figure B). An inverse relationship exists between age and percent decrease in rates among the nonwhites, whereas the percent decrease climbs through ages 45-54, dips for 55-64-year-olds and increases thereafter among the whites (Figure B). The proportionate decrease in rates was higher among the nonwhites than whites in each age group except 45-54. The largest difference in the decrease was apparent among the youngest women, where the white rates dropped 56 percent and the nonwhite rates 78 percent. Over the study period, the white mortality rate dropped the most among the 45-54-year-olds, whereas the largest rate decrease was found among nonwhite women aged 25-34.

> Cervical cancer mortality rates increase with age and are higher among nonwhite than white women.

**Figure B — Percent Decrease in Uterine Cancer Mortality Rates by Site and Race, Women Aged 25-74, United States, 1960 to 1984**



*Insufficient data for computation of percent decrease among all other women in this age group.

Source: Tables 1 and 2.

## Table 2—Mortality From Cancer of Corpus Uteri Among Women Aged 25-74, by Age and Race United States, 1960 to 1984

| Age Group | Death Rate per 100,000<br>1960 | 1965 | 1970 | 1975 | 1980 | 1984 | Percent Decrease 1960 to 1984 |
|---|---|---|---|---|---|---|---|
| **WHITE** | | | | | | | |
| 25-74* | 7.3 | 6.3 | 5.2 | 4.7 | 4.4 | 4.0 | 45.2 |
| 25-34 | .5 | .5 | .3 | .2 | .2 | .2 | 60.0 |
| 35-44 | 2.0 | 1.5 | 1.1 | .9 | .7 | .6 | 70.0 |
| 45-54 | 6.5 | 5.5 | 4.4 | 3.7 | 3.1 | 2.5 | 61.5 |
| 55-64 | 17.9 | 13.9 | 12.3 | 11.5 | 10.5 | 9.6 | 46.4 |
| 65-74 | 29.6 | 28.8 | 24.1 | 21.9 | 21.8 | 21.1 | 28.7 |
| **ALL OTHER** | | | | | | | |
| 25-74* | 14.5 | 12.6 | 9.8 | 8.0 | 7.4 | 6.1 | 57.9 |
| 25-34 | 1.0 | 1.3 | .9 | .5 | † | † | † |
| 35-44 | 4.9 | 3.7 | 3.1 | 1.5 | 1.7 | .9 | 81.6 |
| 45-54 | 16.6 | 11.0 | 9.0 | 6.3 | 4.9 | 4.8 | 71.1 |
| 55-64 | 39.1 | 29.4 | 24.5 | 19.2 | 18.6 | 13.0 | 66.8 |
| 65-74 | 41.7 | 52.2 | 36.5 | 37.1 | 35.1 | 33.1 | 20.6 |

*Adjusted on basis of age distribution of the United States total population, 1940

† Fewer than 10 deaths; rate not shown

Source of basic data: Reports of the Division of Vital Statistics, National Center for Health Statistics and the Bureau of the Census.

### Cancer of the Corpus Uteri

As with cervical cancer, mortality from cancer of the corpus uteri decreased steadily in both groups of women during the study years. This decline was present across all age groups as well (Table 2). Total mortality decreased 58 percent among the nonwhite women and 45 percent among the whites. While the rates continued to be higher among the women of all other races, the gap between the white and the nonwhite mortality rates diminished (Figure A). Since 1965 larger decreases occurred among the nonwhite women aged 25-74 than the whites. Between 1980 and 1984 the rates dropped twice as much for all other women than for the white women of this age.

Larger decreases in rates were apparent for nonwhite than for white women aged 35-44, 45-54 and 55-64. For both groups, the largest rate decrease was apparent among the 35-44-year-olds (Figure B). In this age

For both white and nonwhite women, the largest decrease in mortality rates from cancer of the corpus uteri was among 35-44-year-olds.

group, the rates dropped from 4.9 per 100,000 to 0.9 among the nonwhites and from 2.0 to 0.6 per 100,000 for whites. There was a slower, but steady decline in the death rates in each older age group to only 21 percent, for instance, among nonwhite women aged 65-74, and 29 percent among the whites.

## Public Health Impact

The progressive decline in mortality rates from cancer of the uterus (cervix and corpus) constitute a strong example of effective public health research, education and practice. Before the 1950s uterine cancer was one of the most common causes of cancer death among U.S. women. With the introduction, efficacy and acceptance of routine cervical cytological screening (i.e., the Papanicolaou or "Pap" test), dramatic reductions in mortality rates have taken place. Such screenings have led to increases in the diagnosis and subsequent treatment of in-situ cervical neoplasia. Studies have indicated that about half of these cases would likely have developed into invasive carcinoma in the women's lifetime. Thus, the increases in in-situ diagnoses (and treatment) can probably be translated directly into the observed decreases in cervical cancer mortality.

One can infer from trends in the age and white/nonwhite distributions of cervical cancer mortality rates, that screening activities should be expanded to cover more fully nonwhite and post-menopausal women. In addition, with the increasing sexual activity of younger women, screening of teenage women could have a public health effect.

Deaths from carcinoma of the corpus uteri have also declined dramatically over the last 25 years. The rates have dropped the least, however, among women aged 65-74. As the total female population ages, more women are at risk, and thus, surveillance of this older age group will be increasingly important. Physicians and the public should be alert to the continuing need for gynecologic screening of all groups of women. □

## References

[1] Berman, M.L., Ballon, S.C., Berek, J.S., Hocker, N.F., Lagasse, L.D. "Chapter 28: Carcinoma of the Uterine Cervix," and Berman, M.L., Ballon, S.C., Berek, J.S. "Chapter 29: Neoplasms of the uterine corpus." In *Cancer Treatment*, C.M. Haskell (ed.) Philadelphia: W.B. Saunders Company, 1985.

[2] Silverberg, E., Lubera, J. "Cancer Statistics 1987." *Ca-A Cancer J. for Clinicians* 37:2-19, 1987.

[3] Devesa, S.S. "Descriptive epidemiology of cancer of the uterine cervix." *Obstet. Gynecol.* 63:605-612, 1984.

[4] Doll, R., Peto, R. *The Causes of Cancer*. Oxford: Oxford University Press, 1981.

[5] Hill, E.C. "Editorial: Obstetrics and gynecology." *JAMA* 256:2068-2070, 1986.

[6] Fenoglio, C.M., Ferenczy, A. "Etiologic factors in cervical neoplasia." *Semin. Oncol.* 9:349-358, 1982.

[7] Sadeghi, S.B., Hsieh, E.W., Gunn, S.W. "Prevalence of cervical intraepithelial neoplasia in sexually active teenagers and young adults." *Am. J. Obstet. Gynecol.* 148:726-729, 1984.

[8] Schwartz, S.M., Weiss, N.S. "Increased incidence of adenocarcinoma of the cervix in young women in the United States." *Am. J. Epid.* 124:1045-1047, 1986.

[9] Hammond, E.C., Burns, E.L., Seidman, H., Percy, C. "Detection of uterine cancer: High and low risk groups." *Cancer* 22:1096-1107, 1968.

[10] Kim, K., Rigal, R.D., Patrick, J.R., Walters, J.K., Bennett, A., Nordin, W., Claybrook, J.R., Parekh, R.R. "The changing trends of uterine cancer and cytology." *Cancer* 42:2439-2449, 1978.

[11] Robboy, S.J., Noller, K.L., O'Brien, P. et al. "Increased incidence of cervical and vaginal dysplasia in 3,980 diethylstilbestrol-exposed young women." *JAMA* 252:2979-2983, 1984.

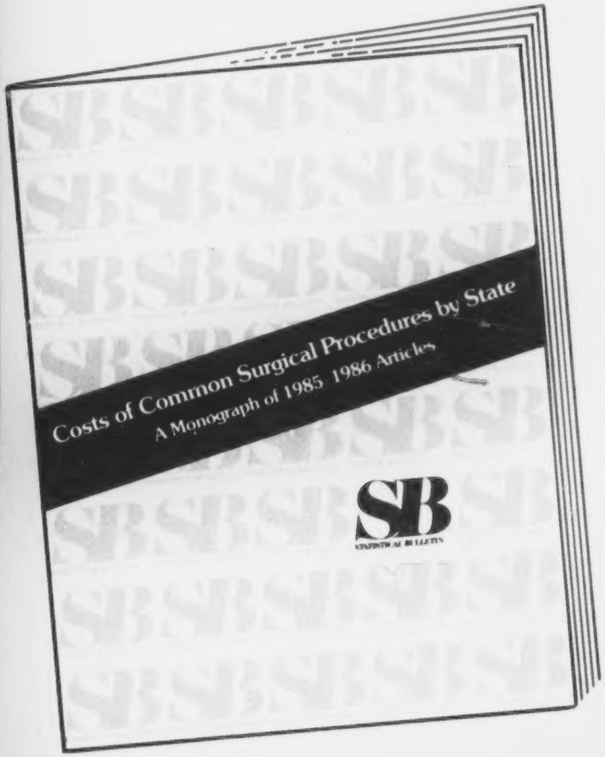
[12] Reid, R., Fu, Y.S., Herschman, B.R. "Genital warts and cervical cancer. VI. The relationship between aneuploid and polyploid cervical lesions." *Am. J. Obstet. Gynecol.* 150:189-199, 1984.

[13] Winkelstein, W., Jr. "Smoking and cancer of the uterine cervix: Hypothesis." *Am. J. Epid.* 106:257-259, 1977, and Brinton, L.A., Schairer, C., Haenszel, W., Stolley, P., Lehman, H.F., Levine, R., Savitz, D.A. "Cigarette smoking and invasive cervical cancer." *JAMA* 255:3265-3269, 1986.

# Costs of Common Surgical Procedures by State

Here is a 44-page compilation of articles and editorials from 1985/86 that present a unique contribution to the current American dialogue about balancing medical care expenses while providing high-quality medical care.

The data included are unusual in that they profile a large, private, group insurer's recent experiences with medical care charges and length of stay. As such, they serve to complement other medical care data and help professionals to better understand the differences in medical care situations throughout the country.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## Coming in Future Issues

- Profile of American Husbands
- Prostatectomies: Regional Variations in Costs
- New U.S. Life Expectancy Tables
- Costs of Cataract Surgery

# Historical Perspectives

## 20 YEARS AGO

### IN THE 1967 STATISTICAL BULLETIN

**Hernia, although not a common cause of death, was a leading cause of hospitalization.** National Health Survey findings from July 1957 to June 1959 estimated that about 2.9 million persons in the United States —about 15 per 1,000—had a hernia. The condition occurred most often at the extremes of life—in infancy for congenital reasons and in old age as a result of weakened body tissues. Hernia was reported three times more frequently among males than females, reflecting greater strenuous activities and vulnerability to hernias of the groin among men. Hernia was the fourth leading cause of hospitalization among males. The average length of hospitalization for men was one week; women stayed three days longer. Both frequency and duration of hospitalization increased with age. Almost half the discharged patients were 45 and older, with length of stay rising from 3.3 days at ages under 15 to 9.7 days at ages 45 and older. Hernia repairs were second only to tonsillectomies in frequency of operations performed on males in U.S. short-stay hospitals. Surgery was the usual treatment for most simple hernias; surgical risk was extremely low and recurrences were generally experienced only by older people or those with weakened tissues. Mortality was highest among infants and the elderly and slightly higher for males than females. (Page 8, January) □

**A study on regional mortality from multiple sclerosis (MS) in the United States** for 1960-64 reported by Met Life statisticians showed higher rates in the northern colder regions of the country than in the warmer southern states. Also, death rates for whites and females were higher than for nonwhites and males. Mortality from this chronic neurological disorder was largely concentrated in mid-life, with most deaths in 1960-64 occurring between ages 45 and 65. MS was also an important cause of disability among young adults; 71 percent of the 2,000 MS afflicted workers on Social Security disability in 1964, were under age 50. In contrast, only 14 percent of 11,368 workers disabled by strokes were under 50 years old. Better care of MS victims and the use of antibiotics to treat complications helped prolong lives. Life expectancy after disease onset increased from 5 to 10 years in the 1940s to about 27 years by 1967. Emphasis was placed on the need for more research as to the cause, prevention, diagnosis and treatment of MS. (The same emphasis on more research could be said to exist today—ed.) (Page 6, June) □

**A comparison of infant mortality trends among 15 selected countries** for the period 1953-54 and 1963-64 revealed that all the other countries had outpaced the United States in reducing their infant death rates. In 1953-54 the U.S. ranked eighth, but 10 years later Americans had the highest infant mortality among the countries studied. By contrast, Japan, Czechoslovakia and Finland reported the steepest declines—around 50 percent—compared with 8 percent for the United States. Sweden had the lowest rate among the 15 countries in 1963-64—14.8 per 1,000 live births compared with 25.0 for the United States. The other countries were apparently able to reduce their infant mortality by providing prenatal care to virtually all their expectant mothers. (An international comparison of rates for 1983, among the 15 selected countries studied, revealed that the U.S. had a rate of 11.2 per 1,000 live births and ranked twelfth—ed.) (Page 3, May) □

**A special study of Met Life employees** revealed that diseases of the digestive system accounted for about one-eighth of the new disability cases lasting longer than a week in 1963-64. Female employees had higher disability rates than males, not only for digestive disorders but for all causes. Disability from digestive diseases rose with age, especially among men. In addition, several digestive disorders showed marked sex differentials; abdominal hernia disabled men 5 to 1 over women, but diarrhea and enteritis occurred in a 3.5 to 1 ratio, women to men. Stomach and duodenal ulcers and hernias of the abdominal cavity were the leading digestive disorders among men. Together, these conditions represented over half of all male disability from digestive diseases. Among both sexes, appendicitis was an important cause of disability only at ages under 25. The disability claim records showed emotional stress to be more frequently associated with digestive problems than with most other causes of disability. (Page 10, April) □

**The President's Committee on Mental Retardation** estimated that approximately three percent of the 1967 U.S. population was retarded. Further, about 100,000 of the babies born each year were destined to join this group of approximately three million. More than 100 causes of mental retardation, including genetic factors, metabolic disorders and prenatal infections, were identified, but these accounted for only one-quarter of all mental retardation. For the others—the mildly retarded —causes were not definitely known, but could have been related to factors such as poor diet and inadequate prenatal and infant care. Studies of the mentally retarded in state institutions confirmed their high death rate. The President's Committee stressed the urgency for extensive research into the causes of mental retardation and the need for skilled health care professionals to help develop the abilities of the mentally retarded (Page 5, November) □

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# SB
# STATISTICAL BULLETIN

Vol 68 No 3 Jul – Sep 1987

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**8** **New High for Expectation of Life** The trend continues upward as the gap between the sexes narrows.

**15** **Costs of Prostatectomy: Variations Within the United States. Metropolitan Life's group** customers' charges for this common operation vary greatly throughout the nation.

**24** **Trends in Ectopic Pregnancies: United States 1970 to 1985.** Increasing incidence is making these unfortunate pregnancies a major public health problem for many women.

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# From The Editor's Desk

"The times they are a changin'," sang Bob Dylan prophetically in 1965, but he couldn't have known the half of it. Take the age of men at marriage in 1985, for instance. In this issue of *SB* we report that in the intervening years, men have married at progressively later ages. As we remark in the lead article, "Profile of the American Husband," men's age at first marriage in the United States is now approaching its previous record level of 26.1 years set in 1890. Predictably, twenty-first century PTAs should have more gray-haired fathers in their membership. Any other changes you care to project? There should be many more.

**Life Expectancy at All-Time High**

Speaking of age, we also report, in "New High for Expectation of Life," the exciting news that expectation of life at birth of the United States population reached a new all-time high of 75.0 years in 1986. This represents a major increase (0.3 years) from the 1985 estimate, and seems clearly indicated from the excellent mortality experience that older Americans as well as infants have had during the past decade. The social and economic implications for the next century could be profound indeed, if these life expectation levels continue to increase.

**Prostatectomy: Now Open for Discussion?**

Know any men who have had a prostatectomy, besides President Reagan? Chances are that you do, because the procedure is very common, but patients don't talk about it. Prostatectomy happens to be one of those "unmentionable" operations, because it involves a reproductive organ. However, it is expensive and becoming more controversial as debate among medical care researchers focuses on its absolute necessity in cases of urinary obstruction. Thanks to the President, prostatectomy's now open for discussion.

**For Women—A Major Health Problem**

Here's a question for you: What happened 75,000 times in the United States in 1985 that turned likely happiness into sorrow and near tragedy? The answer can be found in our article this issue, "Trends in Ectopic Pregnancies." If you are not familiar with the problem, you may have a brief time-out so that you can turn to those pages. The increasing incidence (up fourfold since 1970) makes this a major public health problem for women of reproductive age in the United States today. Unfortunately, in many cases it is a delayed result of infection in women's Fallopian tubes, usually a sexually transmitted disease.

If you have further questions after the time-out, you may find them answered in "Statistical Information, Please." And with that hope, I wish you much good reading. □

Charles B Arnold

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*The Statistical Bulletin will publish comment and criticism from readers about its contents. Alternate interpretations of data analyses or different points of view about subjects are particularly welcome. Use address at end of publisher's statement, opposite page.*

# Profile of the American Husband

The age at which American men first marry continues to increase and is rapidly approaching the record level of 26.1 years established in 1890. During the first half of this century, the median age at first marriage gradually declined to below 23 years. After remaining near this level during the middle 1950s through the early 1970s, the age began to increase in 1975. Since then, there has been a steady rise in the median age of first marriage, reaching 25.5 years in 1985. Indications are that this recent trend towards later marriage is likely to continue.

> In March 1986 there were more than 54¼ million married men in the United States, constituting over three-fifths of all men aged 15 and over.

In March 1986 there were more than 54¼ million married men in the United States, constituting over three-fifths of all men aged 15 and over. Married men under age 25 represented less than 5 percent of all married men but almost one out of every eight men 15-24 years. In the succeeding age groupings, husbands comprised at least half, and as much as four-fifths of all men. Nearly one-fourth of the married males were aged 35-44, and in each of the next three older age brackets their numbers comprised 16 percent of all husbands.

## Regional Variations

In general, married men represent about three-fifths of all males aged 15 and over in each of the four major regions of the country. The South, with the largest number of males, has the highest proportion of husbands—nearly 35 percent. Next in rank order is the Midwest region (25 percent), followed by the Northeast and West regions (about 20 percent each). Analysis by age of husband reveals a few noteworthy disparities from the overall averages. The South has a disproportionately higher number of young married men, whereas the Northeast contains a significantly lower proportion. Specifically, more than 41 percent of all husbands aged 15-24 reside in the South and just 12 percent live in the Northeast. At ages 25-29 and 30-34, the relative proportion of all married men in the South gradually diminished while that for the Northeast increased; both approached their overall average. At the older ages, there were no substantial variations in the patterns. In the Midwest and Western regions of the country, the proportion of married men did not exhibit any significant fluctuations throughout the various age groupings.

> Married men represent about three-fifths of all males aged 15 and over in each of the four major regions of the country.

## Family Structure

The typical married man lives with his wife in a private household. Less than 5 percent of the married live apart or share someone else's household. The relative number dwelling under the typical arrangement ranges from about 92 percent at ages 15-24 to as high as 97 percent at ages 65 and over. Of the more than 750,000 married couples not living in their own household, most are young (almost

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# Characteristics of Husbands in the United States, March 1986

| Characteristic | 15 and over | Age of Husband, in Years<br>15-24 | 25-29 | 30-34 | 35-44 | 45-54 | 55-64 | 65 and over |
|---|---|---|---|---|---|---|---|---|
| Husbands — Number in thousands | **54,285** | 2,414 | 5,728 | 7,032 | 12,545 | 9,198 | 8,662 | 8,706 |
| — Percent distribution | **100.0** | 4.4 | 10.6 | 13.0 | 23.1 | 16.9 | 16.0 | 16.0 |
| — Percent of all men in age group | **61.3** | 12.7 | 53.3 | 68.9 | 78.6 | 83.8 | 83.7 | 77.2 |
| Race (1985) — percent | **100.0** | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| White | **89.5** | 90.7 | 88.9 | 88.5 | 88.6 | 88.5 | 90.3 | 91.9 |
| Nonwhite | **10.5** | 9.3 | 11.1 | 11.5 | 11.4 | 11.5 | 9.7 | 8.1 |
| Region (1985) — percent* | **100.0** | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Northeast | **20.5** | 12.1 | 16.9 | 18.6 | 21.3 | 21.6 | 22.9 | 21.7 |
| Midwest | **25.5** | 25.2 | 26.3 | 26.7 | 25.0 | 24.4 | 25.9 | 25.4 |
| South | **34.7** | 41.4 | 36.4 | 34.2 | 33.1 | 35.5 | 33.1 | 35.2 |
| West | **19.3** | 21.3 | 20.4 | 20.5 | 20.6 | 18.5 | 18.1 | 17.7 |
| Age of wife (1985) — percent* | **100.0** | 100.0 | 100.0 | | 100.0 | 100.0 | 100.0 | 100.0 |
| Under 25 | **8.0** | 84.5 | 17.2 | | 1.1 | .2 | .1 | ¶ |
| 25-34 | **25.9** | 14.5 | 77.1 | | 29.3 | 3.1 | .6 | .1 |
| 35-44 | **22.5** | .8 | 5.5 | | 66.1 | 32.0 | 3.7 | .5 |
| 45-54 | **16.3** | .1 | .2 | | 3.3 | 60.0 | 29.9 | 2.6 |
| 55-64 | **15.5** | .1 | ¶ | | .1 | 4.4 | 60.7 | 28.9 |
| 65 and over | **11.8** | ¶ | ¶ | | .1 | .3 | 5.0 | 67.9 |
| Living arrangement (1985) — percent | **100.0** | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Living with wife in | **95.4** | 91.7 | 94.6 | 94.7 | 95.3 | 95.0 | 96.7 | 97.1 |
| Own household as | **94.0** | 84.7 | 91.5 | 93.2 | 94.5 | 94.4 | 96.0 | 95.9 |
| Householder | **89.0** | 79.2 | 85.0 | 86.9 | 89.6 | 90.0 | 91.9 | 91.6 |
| Husband of householder | **5.0** | 5.5 | 6.5 | 6.3 | 4.9 | 4.4 | 4.1 | 4.3 |
| Relative's or nonrelative's household | **1.4** | 7.0 | 3.1 | 1.5 | .8 | .6 | .7 | 1.2 |
| Not living with wife | **4.6** | 8.3 | 5.4 | 5.3 | 4.7 | 5.0 | 3.3 | 2.9 |
| Householder | **2.7** | 2.7 | 2.9 | 2.8 | 2.9 | 3.0 | 2.4 | 1.9 |
| Not householder | **1.9** | 5.6 | 2.5 | 2.5 | 1.8 | 2.0 | .9 | 1.0 |
| Number of own children under 18 years of age (1985) — percent* | **100.0** | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| No children | **51.9** | 46.1 | 34.0 | 19.3 | 17.0 | 55.9 | 89.2 | 98.7 |
| One child | **19.2** | 33.4 | 30.5 | 25.1 | 24.6 | 25.0 | 8.0 | .9 |
| Two children | **18.8** | 16.9 | 25.6 | 36.0 | 35.7 | 12.9 | 2.0 | .2 |
| Three children | **7.2** | 3.3 | 8.0 | 14.2 | 15.4 | 4.4 | .5 | .1 |
| Four or more children | **2.9** | .3 | 1.9 | 5.4 | 7.3 | 1.8 | .3 | .1 |
| Own children per 100 husbands | **90** | 78 | 112 | 160 | 173 | 72 | 15 | 2 |
| Educational attainment (1985) — percent | **100.0** | 100.0 | | 100.0 | | 100.0 | 100.0 | 100.0 |
| Less than one year of high school | **13.2** | 7.1 | | 4.2 | | 8.6 | 18.9 | 34.1 |
| One to three years of high school | **12.1** | 19.6 | | 9.3 | | 10.3 | 14.6 | 15.9 |
| Four years of high school | **36.1** | 51.5 | | 41.0 | | 35.5 | 34.3 | 27.9 |
| One to three years of college | **16.2** | 15.9 | | 21.6 | | 17.1 | 12.2 | 9.8 |
| Four years of college | **12.0** | 4.8 | | 14.7 | | 13.9 | 11.2 | 6.5 |
| Five or more years of college | **10.4** | 1.1 | | 9.2 | | 14.6 | 8.8 | 5.8 |
| Median school years completed | **12.7** | 12.5 | | 12.9 | | 12.9 | 12.5 | 12.0 |
| Labor force participation — percent | **100.0†** | 100.0† | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| In labor force | **77.1** | 88.3 | 92.9 | 93.9 | 94.0 | 92.4 | 69.2 | 17.5 |
| Not in labor force | **22.9** | 11.7 | 7.1 | 6.1 | 6.0 | 7.6 | 30.8 | 82.5 |
| Income (1985) — percent | **100.0‡** | 100.0‡ | | | 100.0 | | | 100.0 |
| Under $4,000 | **5.0** | 9.4 | | | 4.5 | | | 6.4 |
| $ 4,000 – $ 9,999 | **14.9** | 25.4 | | | 10.0 | | | 36.0 |
| $10,000 – $14,999 | **14.7** | 28.6 | | | 12.2 | | | 23.0 |
| $15,000 – $19,999 | **13.2** | 18.9 | | | 12.9 | | | 13.4 |
| $20,000 – $24,999 | **11.9** | 9.7 | | | 13.0 | | | 7.0 |
| $25,000 and over | **40.3** | 8.0 | | | 47.4 | | | 14.2 |
| Median income | **$20,928** | $12,168 | | | $23,990 | | | $11,476 |

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*Excludes husbands with spouse absent.
†Excludes husbands under age 16.
‡Excludes husbands under age 18.
¶ Less than 0.05.

Note: Data relate to the civilian noninstitutionalized population. Source of basic data: Various reports of the Bureau of the Census and the Department of Labor.

half are under 30 years of age) who share the living quarters of a relative until they are able to establish their own home.

The proportion of married couples with children under 18 living with them varies markedly at different stages of family life. Overall, almost half of married men have one or more of their own children under age 18 residing with them. Of the families headed by a male under 25 years of age, one-third have one child, and one-fifth have two or more children. Not surprisingly, the proportion with two or more children increases markedly in families headed by 25-29 year olds.

Family responsibilities are highest when the husband is in his 30s or early 40s.

Family responsibilities are highest when the husband is in his 30s or early 40s. At these ages, 8 out of 10 couples are responsible for at least 1 child, with 1 couple in 5 having 3 or more children in their care. After the husband's 45th birthday, families generally decrease in size as children begin to leave home. Perhaps unexpectedly, however, households headed by men aged 65 or over have about 150,000 children under the age of 18.

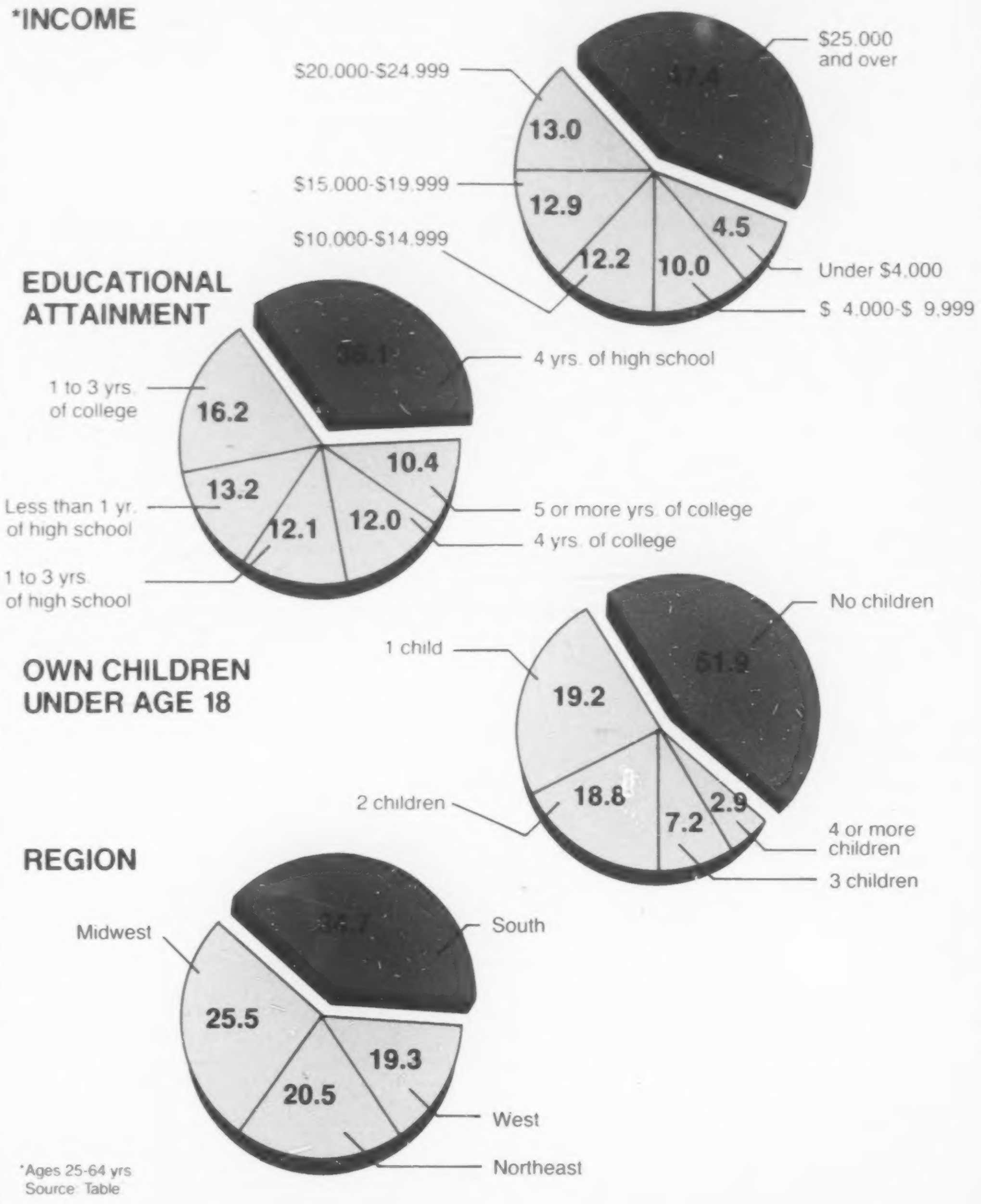
## Educational Attainment

The age group of American husbands has a profound association with the extent of their formal education. For instance, on the average, over 22 percent have completed four or more years of college. The relative number with this amount of formal schooling was almost 25 percent at ages 25-44 and was over 28 percent at ages 45-54. For many in the cohort aged 55 and over, however, their lower attainment is a reflection of changed economic circumstances, and greater emphasis on college education since 1945. For example, at ages 55-64, just one-fifth of the husbands had a college degree and at ages 65 and over the proportion declined to 12 percent. At the other end of the spectrum, one-half of the married men aged 65 and over had less than a high school education. The proportion without a high school diploma declined rapidly the younger the age of the husband (those aged 15-24 being excluded). Today the value of a good education is reflected in the fact that just one out of seven married men aged 25-44 did not complete high school.

Just one out of seven married men aged 25-44 did not complete high school.

Men usually marry women their age or slightly younger. As shown in the six age groupings examined in the Table, at least 60 percent of the wives are in the same age bracket as their husbands. That proportion is highest—85 percent—at ages 15-24 and then gradually declines. At ages 25-34 more than three-quarters of the husbands and wives are in this age grouping, and at ages 35-44 the figure is two-thirds. Coincidentally, perhaps, the proportion of husbands aged 65 and over with wives in the same age group is also two-thirds. The vast majority had wives who, if not in their same age bracket, were in the preceding age group.

## Selected Characteristics of Husbands in the United States, 1985 (Percent Distribution)



*Ages 25-64 yrs
Source: Table

## Husbands at Work

Traditionally, husbands have been the principal breadwinner in the American family. However, since the 1950s this task has been increasingly shared with wives.* The husbands' roles remain a major factor, as found for instance in March 1986, when nearly 80 percent of all married men aged 16 and over were in the labor force. At younger ages, (i.e., under 25) the proportion was 88 pecent. With increasing age, the proportion rose, reaching 94 percent at ages 35-44. The relative number of married men in the labor force was 92 percent at ages 45-54, but thereafter dramatically declined, related to early retirement, unemployment, or disability. At ages 55-64 only 69 percent of the married males were gainfully employed or actively seeking work. Among married men aged 65 and over, one in six were still in the labor force.

In 1985 the median income of married men aged 18 and over was slightly more than $20,000.

In 1985 the median income of married men aged 18 and over was slightly more than $20,000. At age 25-64—the main earning period—almost one-half of all married men earned $25,000 or more, and around one-fourth earned between $15,000 and $25,000. It is noteworthy that almost 30 percent of these husbands reported incomes less than $15,000 a year. For married men under 25 years of age and for those aged 65 and over, the earnings distribution is significantly different. The accompanying figure presents the income distribution for married men aged 25-64 in addition to several other selected characteristics.

An analysis of the current characteristics of husbands shown in the Table comparing those about a decade ago published in a previous *Statistical Bulletin*, disclosed some interesting developing trends.† For example, it's evident that married men are proportionately fewer in number, have fewer children, but improved their educational attainment. On the other hand, there have been no significant changes with regard to area of residence, living arrangements or labor force participation. □

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*See the Apr-Jun 1987 *Statistical Bulletin* for a profile of the American wife

†*Statistical Bulletin*, Oct-Dec 1978, p 12-13

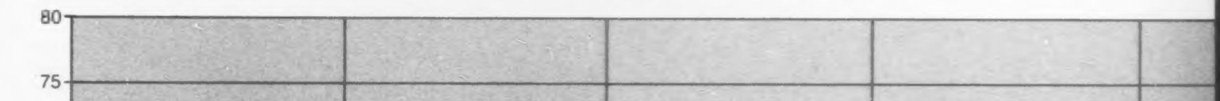
# New High for Expectation of Life

Expectation of life at birth for the total resident population of the United States established an all-time high of 75.0 years in 1986, according to preliminary life tables prepared by the Metropolitan Life Insurance Company. This is an increase of 0.3 years since 1985 and is a significant accomplishment because there was no gain in life expectancy between 1984 and 1985. Moreover, it is noteworthy that between 1982 and 1985 the average length of life rose only 0.1 years.

In contrast to the experience for the entire population, longevity for newborn boys has continued the recent trend of small but steady gains. Since 1980 expectation of life at birth for boys has recorded new highs in five of the past six years. Last year life expectancy for infant girls also reached a new record; it had fluctuated around the previous high, first established in 1982, and thereafter experienced no improvement. In 1986 life

In 1986 life expectancy of infant boys was 71.5 years and that of newborn girls was 78.5 years.

Trend in Expectation of Life at Birth, By Sex, United States, 1900 to 1986

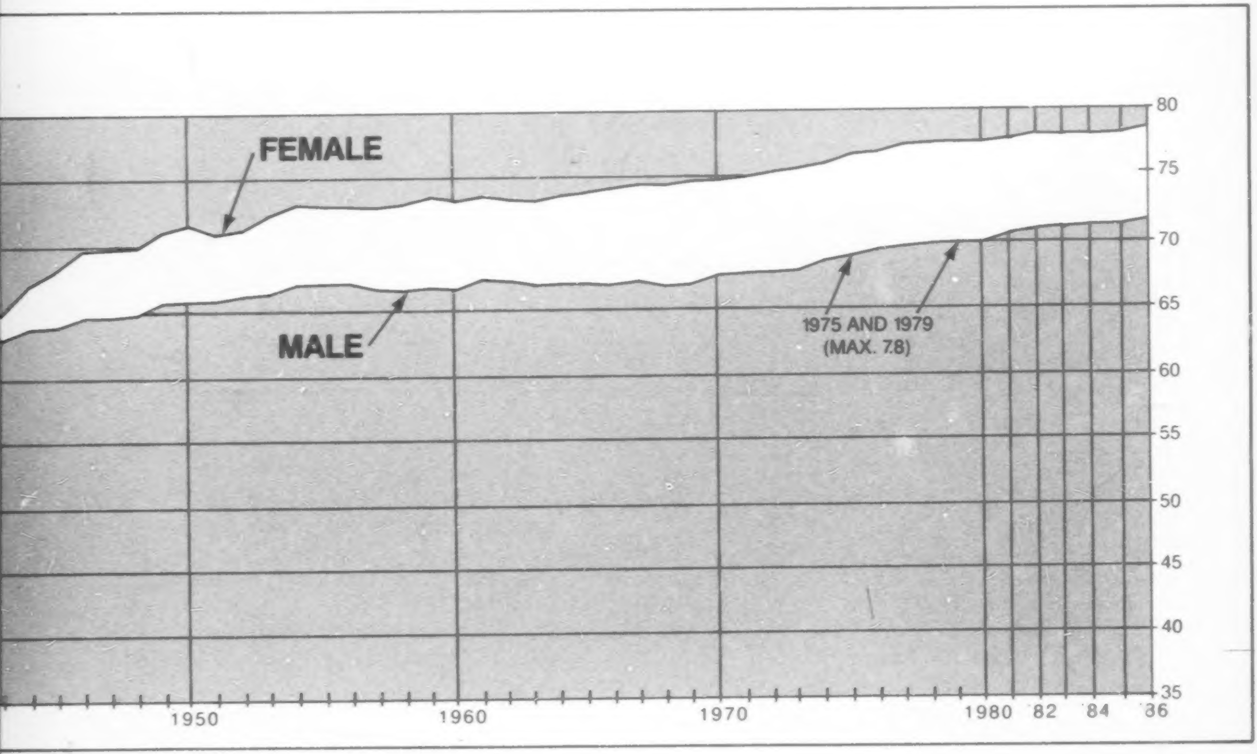


Sources: Various reports by the National Center for Health Statistics.

expectancy of infant boys was 71.5 years and that of newborn girls was 78.5 years.

The gain in expectation of life during 1986 took place despite increases in mortality from influenza, AIDS, and cancer. Influenza epidemics usually exhibit their detrimental effects by impacting heavily on the growing numbers of elderly, producing increased death rates from pneumonia and influenza, chronic obstructive pulmonary disease and allied diseases. These epidemics also affect mortality from the major cardiovascular diseases. AIDS related deaths may adversely affect life expectancy because they greatly reduce the number of cumulative person-years in life table analyses. Mortality from cancer increased last year as it has every year since 1979.

These three adverse factors were offset by reduced cardiovascular disease death rates and, as well, continued improved infant mortality. The year 1986 was the 24th consecutive one in which infant mortality in the United States declined. Infant death rates fell to an estimated record low of 10.4 per 1,000 live births. In 1985 the provisional mortality rate during the first year of life was 10.6 per 1,000 and in 1984 the final rate was 10.8 per 1,000. Mortality from the major cardiovascular diseases—heart attack and stroke—the leading cause of death in 1986, continued its 18-year decline.



## Table 1—Expectation of Life (In Years) United States, 1979–81 to 1986

| | | National Center for Health Statistics | | | Metropolitan Life Insurance Company |
|---|---|---|---|---|---|
| | Age | 1979-81 | 1984 | 1985* | 1986† |
| Total Population | 0 | 73.9 | 74.7 | 74.7 | **75.0** |
| | 15 | 60.2 | 60.9 | 60.9 | **61.1** |
| | 25 | 50.8 | 51.4 | 51.4 | **51.7** |
| | 35 | 41.4 | 42.0 | 42.0 | **42.3** |
| | 45 | 32.3 | 32.8 | 32.8 | **33.1** |
| | 55 | 23.9 | 24.2 | 24.2 | **24.5** |
| | 65 | 16.5 | 16.8 | 16.8 | **17.0** |
| Male | 0 | 70.1 | 71.2 | 71.2 | **71.5** |
| | 15 | 56.5 | 57.4 | 57.4 | **57.7** |
| | 25 | 47.4 | 48.2 | 48.1 | **48.5** |
| | 35 | 38.2 | 38.9 | 38.9 | **39.3** |
| | 45 | 29.2 | 29.9 | 29.9 | **30.2** |
| | 55 | 21.1 | 21.5 | 21.6 | **21.8** |
| | 65 | 14.2 | 14.6 | 14.6 | **14.7** |
| Female | 0 | 77.6 | 78.2 | 78.2 | **78.5** |
| | 15 | 63.8 | 64.2 | 64.2 | **64.5** |
| | 25 | 54.2 | 54.5 | 54.5 | **54.8** |
| | 35 | 44.5 | 44.9 | 44.8 | **45.1** |
| | 45 | 35.2 | 35.5 | 35.4 | **35.7** |
| | 55 | 26.4 | 26.6 | 26.5 | **26.8** |
| | 65 | 18.4 | 18.6 | 18.6 | **18.9** |

* Provisional. † Estimated.

### Sex Differentials

Although there still is a substantial sex differential in expected future lifetime at birth, the gap between the sexes has recently diminished. In 1979 newborn girls could expect to outlive infant boys by a record 7.8 years. Thereafter, the divergent sex patterns in longevity have resulted in the gradual reduction of the women's advantage. During 1984 and 1985 the difference in expectation of life at birth between girls and boys had narrowed to 7.0 years. This disparity remained steady in 1986, but indications are that the longevity gap is on the verge of declining further. The accompanying figure graphically presents the trend in expectation of life at birth by sex since 1900. As may be seen, since 1944 the difference between male and female longevity at birth did not fluctuate to any degree, but slowly widened. The advent of antibiotics, improved sanitation and advances in medical science all undoubtedly

## Table 2—Expectation of Life at Selected Ages, By Race and Sex United States, 1900–02 to 1985

| | White | | | | | All Other | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Total | | | | | Black | | | | |
| Age | 1900-02 | 1949-51 | 1979-81 | 1984 | 1985* | 1900-02 | 1949-51 | 1979-81 | 1984 | 1985* | 1900-02 | 1949-51 | 1979-81 | 1984 | 1985* |
| **Expectation of Life (In Years)** | | | | | | | | | | | | | | | |
| **Male** | | | | | | | | | | | | | | | |
| 0 | 48.2 | 66.3 | 70.8 | 71.8 | 71.8 | NA | 58.9 | 65.6 | 67.4 | 67.2 | 32.5 | NA | 64.1 | 65.6 | 65.3 |
| 25 | 38.5 | 44.9 | 47.9 | 48.7 | 48.7 | | 39.5 | 43.5 | 44.7 | 44.6 | 32.2 | | 42.1 | 43.1 | 42.8 |
| 45 | 24.2 | 26.9 | 29.5 | 30.2 | 30.2 | | 23.6 | 26.6 | 27.5 | 27.6 | 20.1 | | 25.6 | 26.3 | 26.2 |
| 65 | 11.5 | 12.8 | 14.3 | 14.6 | 14.6 | | 12.8 | 13.8 | 14.1 | 14.1 | 10.4 | | 13.3 | 13.5 | 13.3 |
| 85 | 3.8 | 4.4 | 5.1 | 5.1 | 5.1 | | 5.4 | 5.7 | 6.0 | 5.8 | 4.0 | | 5.6 | 5.8 | 5.6 |
| **Female** | | | | | | | | | | | | | | | |
| 0 | 51.1 | 72.0 | 78.2 | 78.7 | 78.7 | NA | 62.7 | 74.0 | 75.0 | 75.2 | 35.0 | NA | 72.9 | 73.7 | 73.7 |
| 25 | 40.1 | 49.8 | 54.6 | 55.0 | 54.9 | | 42.4 | 51.1 | 51.9 | 51.9 | 33.9 | | 50.1 | 50.7 | 50.6 |
| 45 | 25.5 | 31.1 | 35.5 | 35.8 | 35.7 | | 26.1 | 32.8 | 33.4 | 33.3 | 21.4 | | 31.9 | 32.3 | 32.2 |
| 65 | 12.2 | 15.0 | 18.5 | 18.7 | 18.7 | | 14.5 | 17.6 | 17.8 | 17.9 | 11.4 | | 17.1 | 17.2 | 17.2 |
| 85 | 4.1 | 4.8 | 6.3 | 6.5 | 6.3 | | 6.2 | 7.2 | 7.4 | 7.3 | 5.1 | | 7.1 | 7.3 | 7.2 |
| **Chances per 1,000 of Surviving From Birth to Specific Age** | | | | | | | | | | | | | | | |
| **Male** | | | | | | | | | | | | | | | |
| 25 | 739 | 943 | 966 | 971 | 971 | NA | 903 | 952 | 961 | 960 | 533 | NA | 948 | 957 | 956 |
| 45 | 614 | 890 | 925 | 933 | 932 | | 787 | 866 | 885 | 880 | 392 | | 850 | 868 | 861 |
| 65 | 392 | 635 | 724 | 744 | 745 | | 452 | 585 | 622 | 621 | 190 | | 551 | 583 | 578 |
| 85 | 53 | 120 | 185 | 201 | 200 | | 99 | 145 | 156 | 154 | 20 | | 124 | 129 | 125 |
| **Female** | | | | | | | | | | | | | | | |
| 25 | 766 | 961 | 981 | 983 | 984 | NA | 923 | 970 | 974 | 976 | 558 | NA | 968 | 972 | 973 |
| 45 | 647 | 927 | 961 | 965 | 966 | | 823 | 930 | 939 | 941 | 423 | | 923 | 931 | 933 |
| 65 | 438 | 768 | 848 | 855 | 856 | | 524 | 754 | 774 | 772 | 220 | | 733 | 749 | 746 |
| 85 | 71 | 213 | 388 | 399 | 399 | | 156 | 305 | 313 | 321 | 36 | | 280 | 279 | 284 |

* Provisional. NA not available. Source: Various reports by the National Center for Health Statistics.

contributed to this clear trend. Before this date, however, the pattern was extremely erratic, with the narrowest longevity differential occurring in 1920—1.0 years. The detrimental effects of the 1918 influenza pandemic is strikingly shown by the dramatic decline in expectation of life at birth.

At later ages, life expectancy gains during 1986 were similar to those during infancy. For example, as shown in Table 1, in 1986 men aged 35 could anticipate an additional 39.3 years of life or 0.4 years more than the value in 1985 and 1984. At age 55, the average remaining lifetime was 21.8 years

At later ages, life expectancy gains during 1986 were similar to those during infancy.

in 1986, compared with 21.6 years in 1985 and 21.5 years in 1984. Men aged 65 could look forward to another 14.7 years of life—0.1 years more than in 1984 and 1985.

In 1986 women aged 25 had an average future lifetime of 54.8 years—0.3 years greater than was expected in the two previous years. At age 45, 35.7 years of additional life could be anticipated compared with 35.4 years in 1985 and 35.5 years in 1984. The average expectation of life for women 65 years old in 1986 was 18.9 years, establishing a new record

## Race Differentials

With the exception of the 1986 experience, the slight increases in life expectancy at birth in recent years do not compare with the impressive gains during the first half of the century. For example, between 1900-02 and 1949-51, expectation of life at birth rose by 18.1 years for white boys and 20.9 years for white girls. This represents an average expectancy increase of about 0.4 yearly. In the 30 years since 1949-51, the number of additional years of life expected at birth increased by 4.5 years for white boys and 6.2 years for white girls—or an average of roughly 0.2 a year. Among nonwhites the increases during these two periods were somewhat larger than for whites. For example, during the first part of the century, the advance in life expectancy for nonwhite babies averaged around 0.5 a year for both infant boys and girls. In the latter period, newborn nonwhite boys' average future lifetime rose by about 0.2 a year, while for nonwhite girls, the gain averaged about 0.4 a year. These values may be determined from Table 2. In the five years after 1979-81, longevity at birth rose by 1.0 years for white boys and 0.5 years for white girls. Among nonwhites, the corresponding increases were 1.6 years and 1.2 years, respectively. It should be noted the gains in expectation of life for blacks were somewhat less than those of all nonwhite persons combined. Also noteworthy is that longevity gains decreased with advance in age for each racial group.

> Throughout this century, race disparities in longevity have tended to gradually diminish.

Throughout this century, race disparities in longevity have tended to gradually diminish. This is especially true at ages under 65. At the older ages some variations still exist. In 1985 at age 25 white males could expect to outlive nonwhite males by 4.1 years. The longevity difference narrowed to 2.6 years at age 45 and declined to just 0.5 years at age 65. Among females, the longevity gap between whites and nonwhites was 3.0 years at age 25, fell to 2.4 years at age 45, was 0.8 years at age 65 and favored nonwhites by 1.0 years at age 85.

## Improved Survival

Concomitant with the long-term trend in longevity improvement, the chances of survival also have increased dramatically. The probability of a newborn white boy

> Concomitant with the long-term trend in longevity improvement, the chances of survival also have increased dramatically.

# Table 3—Expectation of Life and Mortality Rates at Single Years of Age by Race and Sex, United States, 1984

| Age | Expectation of Life (In Years) | | | | | Mortality Rate per 1,000 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total Persons | White | | All Other | | Total Persons | White | | All Other | |
| | | Male | Female | Male | Female | | Male | Female | Male | Female |
| 0 | 74.7 | 71.8 | 78.7 | 67.4 | 75.0 | 10.8 | 10.6 | 8.3 | 17.3 | 14.8 |
| 1 | 74.6 | 71.6 | 78.4 | 67.5 | 75.2 | .7 | .7 | .6 | 1.0 | .9 |
| 2 | 73.6 | 70.7 | 77.4 | 66.6 | 74.2 | .6 | .5 | .4 | .8 | .7 |
| 3 | 72.7 | 69.7 | 76.5 | 65.7 | 73.3 | .4 | .4 | .4 | .7 | .6 |
| 4 | 71.7 | 68.7 | 75.5 | 64.7 | 72.3 | .4 | .4 | .3 | .6 | .5 |
| 5 | 70.7 | 67.8 | 74.5 | 63.7 | 71.4 | .3 | .3 | .2 | .5 | .4 |
| 6 | 69.7 | 66.8 | 73.5 | 62.8 | 70.4 | .3 | .3 | .2 | .4 | .3 |
| 7 | 68.8 | 65.8 | 72.6 | 61.8 | 69.4 | .3 | .3 | .2 | .4 | .3 |
| 8 | 67.8 | 64.8 | 71.6 | 60.8 | 68.4 | .2 | .3 | .2 | .3 | .2 |
| 9 | 66.8 | 63.8 | 70.6 | 59.9 | 67.4 | .2 | .2 | .2 | .3 | .2 |
| 10 | 65.8 | 62.8 | 69.6 | 58.9 | 66.5 | .2 | .2 | .2 | .3 | .2 |
| 11 | 64.8 | 61.9 | 68.6 | 57.9 | 65.5 | .2 | .2 | .2 | .3 | .2 |
| 12 | 63.8 | 60.9 | 67.6 | 56.9 | 64.5 | .2 | .3 | .2 | .3 | .2 |
| 13 | 62.8 | 59.9 | 66.6 | 55.9 | 63.5 | .3 | .4 | .2 | .4 | .3 |
| 14 | 61.9 | 58.9 | 65.6 | 54.9 | 62.5 | .5 | .6 | .3 | .6 | .3 |
| 15 | 60.9 | 57.9 | 64.7 | 54.0 | 61.5 | .6 | .8 | .4 | .7 | .3 |
| 16 | 59.9 | 57.0 | 63.7 | 53.0 | 60.6 | .7 | 1.0 | .4 | .9 | .4 |
| 17 | 59.0 | 56.0 | 62.7 | 52.1 | 59.6 | .8 | 1.2 | .5 | 1.1 | .4 |
| 18 | 58.0 | 55.1 | 61.7 | 51.1 | 58.6 | .9 | 1.3 | .5 | 1.3 | .5 |
| 19 | 57.1 | 54.2 | 60.8 | 50.2 | 57.6 | 1.0 | 1.4 | .5 | 1.5 | .6 |
| 20 | 56.1 | 53.3 | 59.8 | 49.3 | 56.7 | 1.0 | 1.5 | .5 | 1.7 | .6 |
| 21 | 55.2 | 52.3 | 58.8 | 48.3 | 55.7 | 1.1 | 1.6 | .5 | 1.9 | .7 |
| 22 | 54.2 | 51.4 | 57.9 | 47.4 | 54.7 | 1.1 | 1.6 | .5 | 2.1 | .7 |
| 23 | 53.3 | 50.5 | 56.9 | 46.5 | 53.8 | 1.1 | 1.6 | .5 | 2.2 | .8 |
| 24 | 52.4 | 49.6 | 55.9 | 45.6 | 52.8 | 1.1 | 1.6 | .5 | 2.3 | .8 |
| 25 | 51.4 | 48.7 | 55.0 | 44.7 | 51.9 | 1.1 | 1.5 | .5 | 2.4 | .9 |
| 26 | 50.5 | 47.7 | 54.0 | 43.8 | 50.9 | 1.1 | 1.5 | .5 | 2.5 | .9 |
| 27 | 49.5 | 46.8 | 53.0 | 42.9 | 50.0 | 1.1 | 1.5 | .5 | 2.6 | 1.0 |
| 28 | 48.6 | 45.9 | 52.0 | 42.1 | 49.0 | 1.1 | 1.5 | .5 | 2.7 | 1.0 |
| 29 | 47.6 | 44.9 | 51.1 | 41.2 | 48.1 | 1.2 | 1.5 | .6 | 2.8 | 1.1 |
| 30 | 46.7 | 44.0 | 50.1 | 40.3 | 47.1 | 1.2 | 1.5 | .6 | 2.9 | 1.2 |
| 31 | 45.7 | 43.1 | 49.1 | 39.4 | 46.2 | 1.3 | 1.6 | .6 | 3.1 | 1.3 |
| 32 | 44.8 | 42.1 | 48.2 | 38.5 | 45.2 | 1.3 | 1.6 | .7 | 3.3 | 1.4 |
| 33 | 43.9 | 41.0 | 47.2 | 37.6 | 44.3 | 1.4 | 1.6 | .7 | 3.4 | 1.5 |
| 34 | 42.9 | 40.3 | 46.2 | 36.8 | 43.3 | 1.4 | 1.7 | .8 | 3.6 | 1.5 |
| 35 | 42.0 | 39.3 | 45.2 | 35.9 | 42.4 | 1.5 | 1.7 | .8 | 3.9 | 1.6 |
| 36 | 41.0 | 38.4 | 44.3 | 35.0 | 41.5 | 1.6 | 1.8 | .9 | 4.1 | 1.8 |
| 37 | 40.1 | 37.5 | 43.3 | 34.2 | 40.5 | 1.7 | 1.9 | 1.0 | 4.4 | 1.9 |
| 38 | 39.2 | 36.5 | 42.4 | 33.3 | 39.6 | 1.8 | 2.0 | 1.1 | 4.7 | 2.1 |
| 39 | 38.2 | 35.6 | 41.4 | 32.5 | 38.7 | 1.9 | 2.2 | 1.2 | 5.0 | 2.3 |
| 40 | 37.3 | 34.7 | 40.5 | 31.6 | 37.8 | 2.1 | 2.4 | 1.3 | 5.3 | 2.6 |
| 41 | 36.4 | 33.8 | 39.5 | 30.8 | 36.9 | 2.3 | 2.6 | 1.4 | 5.7 | 2.9 |
| 42 | 35.5 | 32.9 | 38.6 | 30.0 | 36.0 | 2.5 | 2.9 | 1.6 | 6.1 | 3.2 |
| 43 | 34.6 | 32.0 | 37.6 | 29.2 | 35.1 | 2.7 | 3.1 | 1.7 | 6.5 | 3.4 |
| 44 | 33.7 | 31.1 | 36.7 | 28.3 | 34.2 | 3.0 | 3.4 | 1.9 | 7.0 | 3.7 |
| 45 | 32.8 | 30.2 | 35.8 | 27.5 | 33.4 | 3.3 | 3.7 | 2.1 | 7.6 | 4.0 |
| 46 | 31.9 | 29.3 | 34.8 | 26.7 | 32.5 | 3.6 | 4.1 | 2.3 | 8.2 | 4.3 |
| 47 | 31.0 | 28.4 | 33.9 | 26.0 | 31.6 | 3.9 | 4.5 | 2.6 | 8.8 | 4.6 |
| 48 | 30.1 | 27.5 | 33.0 | 25.2 | 30.8 | 4.3 | 5.0 | 2.8 | 9.5 | 5.0 |
| 49 | 29.2 | 26.7 | 32.1 | 24.4 | 29.9 | 4.8 | 5.6 | 3.1 | 10.3 | 5.4 |
| 50 | 28.4 | 25.8 | 31.2 | 23.7 | 29.1 | 5.3 | 6.2 | 3.5 | 11.2 | 5.8 |
| 51 | 27.5 | 25.0 | 30.3 | 22.9 | 28.2 | 5.8 | 6.9 | 3.8 | 12.1 | 6.3 |
| 52 | 26.7 | 24.1 | 29.4 | 22.2 | 27.4 | 6.4 | 7.7 | 4.2 | 13.1 | 6.9 |
| 53 | 25.8 | 23.3 | 28.5 | 21.5 | 26.6 | 7.0 | 8.5 | 4.7 | 14.2 | 7.5 |
| 54 | 25.0 | 22.5 | 27.7 | 20.8 | 25.8 | 7.7 | 9.5 | 5.1 | 15.3 | 8.3 |
| 55 | 24.2 | 21.7 | 26.8 | 20.1 | 25.0 | 8.5 | 10.4 | 5.6 | 16.5 | 9.1 |
| 56 | 23.4 | 21.0 | 25.9 | 19.5 | 24.2 | 9.3 | 11.5 | 6.1 | 17.8 | 9.9 |
| 57 | 22.6 | 20.2 | 25.1 | 18.8 | 23.5 | 10.1 | 12.7 | 6.7 | 19.2 | 10.8 |
| 58 | 21.8 | 19.4 | 24.3 | 18.2 | 22.7 | 11.1 | 13.9 | 7.3 | 20.8 | 11.8 |
| 59 | 21.1 | 18.7 | 23.4 | 17.5 | 22.0 | 12.1 | 15.2 | 8.1 | 22.7 | 12.8 |
| 60 | 20.3 | 18.0 | 22.6 | 16.9 | 21.3 | 13.2 | 16.6 | 8.8 | 24.7 | 13.9 |
| 61 | 19.6 | 17.3 | 21.8 | 16.3 | 20.6 | 14.4 | 18.1 | 9.6 | 26.7 | 15.1 |
| 62 | 18.9 | 16.6 | 21.0 | 15.8 | 19.9 | 15.6 | 19.8 | 10.5 | 28.6 | 16.1 |
| 63 | 18.2 | 15.9 | 20.3 | 15.2 | 19.2 | 16.8 | 21.5 | 11.4 | 30.1 | 17.0 |
| 64 | 17.5 | 15.3 | 19.5 | 14.7 | 18.5 | 18.2 | 23.3 | 12.4 | 31.3 | 17.8 |
| 65 | 16.8 | 14.6 | 18.7 | 14.1 | 17.8 | 19.5 | 25.3 | 13.5 | 32.4 | 18.5 |
| 66 | 16.1 | 14.0 | 18.0 | 13.6 | 17.2 | 21.0 | 27.4 | 14.7 | 33.7 | 19.4 |
| 67 | 15.5 | 13.4 | 17.2 | 13.1 | 16.5 | 22.7 | 29.8 | 16.0 | 35.5 | 20.7 |
| 68 | 14.8 | 12.8 | 16.5 | 12.5 | 15.8 | 24.7 | 32.5 | 17.4 | 38.3 | 22.6 |
| 69 | 14.2 | 12.2 | 15.8 | 12.0 | 15.2 | 27.0 | 35.5 | 19.1 | 41.9 | 25.0 |
| 70 | 13.5 | 11.6 | 15.1 | 11.5 | 14.6 | 29.4 | 38.8 | 20.8 | 46.1 | 27.9 |
| 71 | 12.9 | 11.0 | 14.4 | 11.0 | 14.0 | 32.0 | 42.3 | 22.8 | 50.5 | 30.8 |
| 72 | 12.3 | 10.5 | 13.7 | 10.6 | 13.4 | 34.7 | 46.0 | 24.9 | 54.3 | 33.4 |
| 73 | 11.8 | 10.0 | 13.1 | 10.2 | 12.8 | 37.6 | 50.0 | 27.3 | 57.2 | 35.4 |
| 74 | 11.2 | 9.5 | 12.4 | 9.8 | 12.3 | 40.6 | 54.4 | 29.9 | 59.2 | 37.0 |
| 75 | 10.7 | 9.0 | 11.8 | 9.4 | 11.7 | 43.9 | 59.1 | 32.8 | 61.0 | 38.6 |
| 76 | 10.1 | 8.5 | 11.2 | 8.9 | 11.2 | 47.4 | 64.1 | 36.0 | 63.3 | 40.7 |
| 77 | 9.6 | 8.1 | 10.6 | 8.5 | 10.6 | 51.4 | 69.6 | 39.6 | 66.5 | 43.6 |
| 78 | 9.1 | 7.7 | 10.0 | 8.1 | 10.1 | 55.9 | 75.5 | 43.6 | 71.2 | 47.6 |
| 79 | 8.6 | 7.2 | 9.4 | 7.6 | 9.6 | 60.9 | 82.0 | 48.1 | 77.5 | 52.7 |
| 80 | 8.1 | 6.9 | 8.9 | 7.2 | 9.1 | 66.5 | 88.9 | 53.3 | 85.4 | 59.0 |
| 81 | 7.7 | 6.5 | 8.3 | 6.9 | 8.6 | 72.9 | 96.4 | 59.2 | 95.2 | 66.7 |
| 82 | 7.3 | 6.1 | 7.8 | 6.6 | 8.2 | 80.1 | 104.5 | 66.1 | 106.7 | 75.7 |
| 83 | 6.8 | 5.8 | 7.3 | 6.3 | 7.9 | 88.3 | 113.1 | 74.2 | 120.0 | 86.2 |
| 84 | 6.5 | 5.4 | 6.9 | 6.1 | 7.6 | 97.8 | 122.1 | 84.0 | 135.1 | 98.6 |
| 85 | 6.1 | 5.1 | 6.5 | 6.0 | 7.4 | | | | | |

Source: National Center for Health Statistics surviving from birth to age 25 jumped from 739 per 1,000 in 1900-02 to 971 per 1,000 in 1985. Nonwhite boys and all girls also experienced similar enhanced chances. Last year, the probability of survival to age 25 was 984 per 1,000 for white girls, 960 for nonwhite boys and 976 for nonwhite girls. Another indication of improved longevity is the likelihood of reaching age 85. The chances of attaining this age for a white male were 53 per 1,000 in 1900-02, climbed to 120 per 1,000 in 1949-51 and were 200 per 1,000 in 1985. The comparable probabilities for white females have been twice those for white males since 1979-81 and the disparity was nearly as large at the midpoint of the century. Among nonwhites the likelihood of attaining this age was somewhat less than that of whites. As was the case for whites, nonwhite females maintained their significant survival advantage over males.

Notwithstanding the generally larger longevity gains among the nonwhite population, their mortality rates (upon which life expectancy figures are based) continue to remain relatively higher than the corresponding rates among whites. The specifics on life expectancies and mortality rates for whites and nonwhites at single years of age during 1984 (the latest year for which such detail data are available) are presented in Table 3. Death rates were less than 1 per 1,000 population at ages 1 to 36 among white females and at ages 1 to 26 among nonwhite females. Mortality at this low level prevailed only at ages 1 to 15 among white males and at ages 2 to 16 among nonwhite males. Death rates remained below 5 per 1,000 until age 47 for white males and age 53 for white females; for nonwhites, mortality rates below 5 per 1,000 held until age 38 for males and 47 for females.

Based on mortality conditions in 1984, 855 out of every 1,000 white women could expect to celebrate their 65th birthday while only 744 out of every 1,000 white men were likely to do so

Based on mortality conditions as they existed in 1984, 855 out of every 1,000 white women could expect to celebrate their 65th birthday while only 744 out of every 1,000 white men were likely to do so. Among nonwhites, the chances of surviving until age 65 were 774 out of 1,000 for women and 622 in 1,000 for men. The likelihood of a person celebrating an 85th birthday was about 400 in 1,000 among white women and a little more than 310 in 1,000 for nonwhite women. Among men, the chances of reaching age 85 were just half those of women. □

# Costs of Prostatectomy: Variations Within the United States

Prostatectomy (removal of the prostate gland) is the most common surgical procedure among men over age 65.[1] An estimated 367,000 prostatectomies were performed in non-federal, short-stay hospitals across the United States in 1985.[2] The rates of these surgeries increase dramatically with age, and between 1983 and 1985, the rates for all ages combined rose from 318.1 to 320.0 per 100,000 men.[2,3] As the number of prostatectomies has increased, the length of hospital stay has decreased from 11.3 days in 1980 to 8.0 in 1985.[3] The vast majority of prostatectomies involve transurethral resection (TURP), a procedure which requires no incision and needs shorter hospitalization (6.8 days) than the three other forms of prostate removal. Studies to determine the outcomes associated with each type of the surgery continue in order to evaluate differences in recurrence rates, recovery time and mortality among TURP and all other types of prostatectomies.[1,4,5] Prostate enlargement is a condition frequently faced by men as they age, usually beginning in their forties and increasing in subsequent decades. It is estimated that after age 60, some 70 to 80 percent of men experience prostatic enlargement. Yet only about 20 percent of these men will require surgery for relief of symptoms. Prostatic infections are decreasing in frequency and severity but are not uncommon; most are controlled by antibiotics and very few result in surgery. Cancer of the prostate usually strikes men after age 60 and frequently requires surgery. If the disease is discovered early and treated by radical prostatectomy, chances of cure are quite good. Whatever the degree and nature of symptoms, type of procedure or the underlying cause for a prostatectomy, the surgery is serious because most patients are past middle age and frequently have complicating conditions.[6]

As the number of prostatectomies has increased, the length of hospital stay has decreased from 11.3 days in 1980 to 8.0 days in 1985.

Prostatectomy rates differ across the country. For the period 1979-80, the West

***When President Reagan had a prostatectomy in January 1987, that seldom discussed surgery achieved a remarkably elevated status in world news. For that reason, the* Statistical Bulletin *chose to review this procedure from the perspective of medical care utilization. We hope that readers may better understand this relatively unknown, but common operation. We have sought to examine it, using methods similar to other recent SB utilization studies. The prostatectomy cases in this analysis were among active employees (under age 65) in 1985-86, from Metropolitan Life's group health care policyholders.*** ☐

*Editor.*

registered an age-adjusted rate of 128.7 per 10,000 Medicare enrollees, followed by the North Central area with 125.6, the South with 119.2 and the Northeast with 114.0.[17] As the surgical rates vary by geographic area, so do the charges for these procedures. Using claims data from employed persons insured under group contracts issued by Metropolitan Life, we analyzed the charges for a prostatectomy, exclusive of TURP, by geographic areas.

The study group consisted of 107 "typical" prostatectomy operations performed in the continental United States between March 1, 1985, and February 28, 1986, on men ranging in age from 42 to 64 (median age of 61 years). The charges described are average medical and surgical fees (excluding those of anesthesiologists and radiologists), and billed hospital charges for CPT-4* codes 55801-55845. Presentation of the claims data are restricted to states in which at least five prostatectomies were performed: these data are 61 percent of the reported cases in the Metropolitan Life file.

As seen in Figure A, the distribution of these operations varied by geographical

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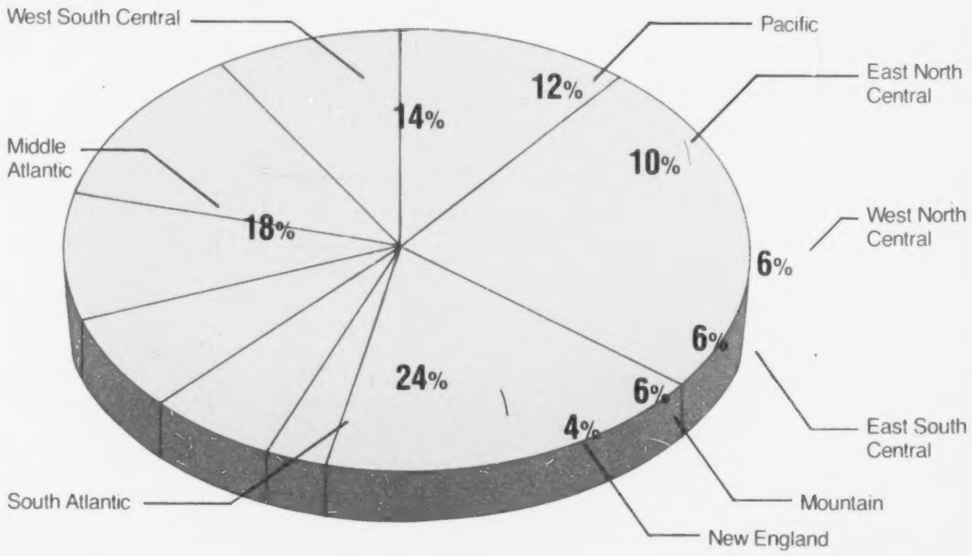
*CPT-4 – Physician's Current Procedural Terminology Fourth Edition

**Figure A — Percent Distribution of Prostatectomy Costs by Geographic Division, United States March 1, 1985 — February 28, 1986**



Source Table 1

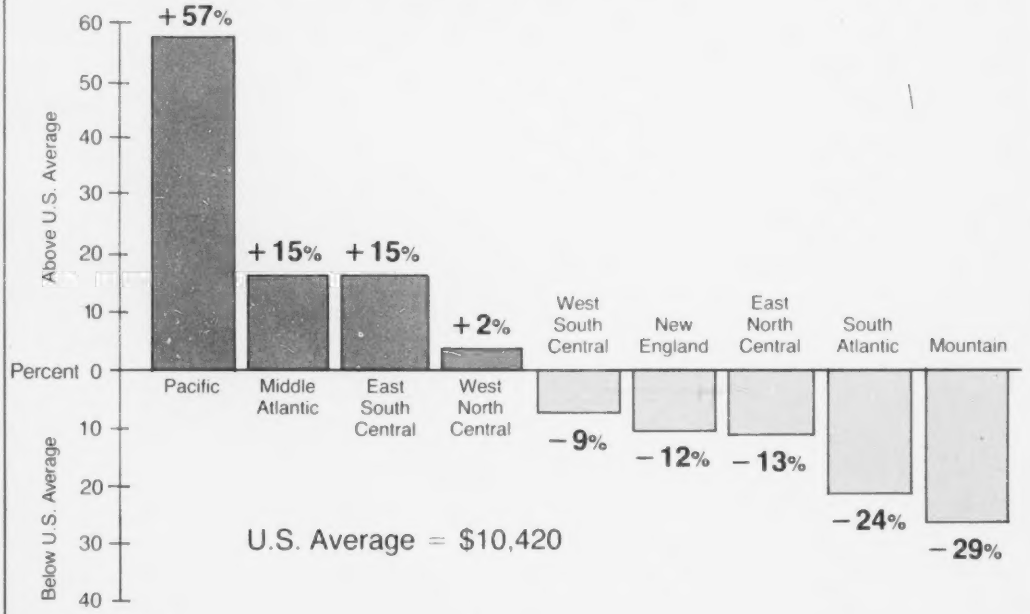
region. Almost one-half of the surgeries were performed in the three divisions along the Eastern Coast, while only 12 percent of the cases were reported for the Pacific Coast states (92 percent of which were from California).

The average total medical care charges for a prostatectomy were $10,420, with as much as 123 percent variation between geographical divisions

## Average Total Cost

The average total medical care charges for a prostatectomy were $10,420, with as much as 123 percent variation between geographical divisions. As with other surgical procedures discussed in previous issues of the *Bulletin*, the Pacific region recorded the highest total charges, $16,380 — almost 60 percent over the U.S. average (Figure B). The Middle Atlantic region registered the second highest total charges, but this total was only 15 percent above the norm. The lowest charges

**Figure B — Regional Costs for Prostatectomy March 1, 1985–February 28, 1986**



Source: Table 1

were reported in the Mountain and South Atlantic divisions, averaging 30 percent and 24 percent, respectively, below the U.S. total. It is interesting that the extremes in charges were reported for contiguous divisions of the country, e.g., Pacific, with charges 123 percent over those reported for the Mountain states.

## Cost Differentials by Region and States

Considerable variation in average prostatectomy charges was evident between states (Table 1). The total charges ranged from the high of $16,860 in California (62 percent above average) to the low of $5,140 (51 percent below the norm) in Utah for the one prostatectomy performed. After California, Pennsylvania and Missouri led in total charges—46 and 45 percent above the average. Other states with high average charges—charges close to 30 percent above the norm—were New York and Tennessee. At the other end of the scale were the charges reported in North Carolina, Ohio and Maryland (at least 40 percent below the average).

Total charges ranged from the high of $16,860 in California to the low of $5,140 in Utah for the one prostatectomy performed.

## Physician Charges

On average, physician costs (medical and surgical) accounted for 31 percent of the total prostatectomy bill and averaged $3,260 across the country (Table 2). These charges were 46 percent higher than the norm in the Pacific region and 37 percent lower than the average in the East South Central area of the country. New York led in these charges with costs 51 percent above the average, followed by California, with physician costs 44 percent above. Pennsylvania and New Jersey were the only other states in which physician charges exceeded the average by more than 10 percent. The lowest physician charges were registered in North Carolina, $1,890, or 42 percent below the U.S. total and 62 percent below the highest, New York.

## Hospital Charges

Hospital charges (ancillary services and room and board) comprised slightly more than two-thirds of the total costs of a prostatectomy, with substantial variation by region. Sixty-five percent of the total costs in the New England and West South Central regions were attributed to hospital charges, whereas these charges comprised 83 percent of the bill in the East South Central region. By state, this proportion of charges ranged from 75 percent in Pennsylvania, to 56 percent in New Jersey. California recorded the highest total hospital charges (70 percent above the U.S.); North Carolina, on the other hand, recorded hospital charges almost half the U.S. average and 68 percent below those in California.

The majority of the hospital bill (68 percent) was for provision of ancillary services.

The majority of the hospital bill (68 percent) was for the provision of ancillary services, i.e., laboratory work, operating and recovery room fees, anesthesia, etc. These charges typically ran two to three

# Table 1—Regional Distribution of Prostatectomy Cases*
# March 1, 1985–February 28, 1986

| | Cases | | | |
|---|---|---|---|---|
| **Geographic Area** | **Number** | **Percent†** | **Total Costs** | **Hospital Charge to Physician Charge** |
| United States | 107 | 100.0 | $10,420 | 2.2:1 |
| New England | 4 | 3.7 | 9,200 | 1.8:1 |
| Connecticut | 2 | 1.9 | 8,810 | |
| Massachusetts | 2 | 1.9 | 9,590 | |
| Middle Atlantic | 19 | 17.8 | 12,010 | 1.9:1 |
| New Jersey | 7 | 6.5 | 8,060 | |
| New York | 7 | 6.5 | 13,690 | |
| Pennsylvania | 5 | 4.7 | 15,180 | |
| East North Central | 11 | 10.3 | 9,020 | 2.1:1 |
| Illinois | 6 | 5.6 | 10,950 | |
| Indiana | 2 | 1.9 | 7,370 | |
| Ohio | 2 | 1.9 | 5,860 | |
| Wisconsin | 1 | 0.9 | 7,030 | |
| West North Central | 6 | 5.6 | 10,440 | 2.2:1 |
| Minnesota | 3 | 2.8 | 7,470 | |
| Missouri | 2 | 1.9 | 15,110 | |
| South Dakota | 1 | 0.9 | 9,990 | |
| South Atlantic | 26 | 24.3 | 7,900 | 2.1:1 |
| Delaware | 1 | 0.9 | 6,930 | |
| Florida | 12 | 11.2 | 9,660 | |
| Georgia | 1 | 0.9 | 6,440 | |
| Maryland | 2 | 1.9 | 5,970 | |
| North Carolina | 6 | 5.6 | 5,810 | |
| South Carolina | 2 | 1.9 | 8,190 | |
| Virginia | 2 | 1.9 | 6,440 | |
| East South Central | 7 | 6.5 | 11,940 | 4.8:1 |
| Alabama | 1 | 0.9 | 8,740 | |
| Mississippi | 2 | 1.9 | 10,530 | |
| Tennessee | 4 | 3.7 | 13,450 | |
| West South Central | 15 | 14.0 | 9,500 | 1.9:1 |
| Louisiana | 3 | 2.8 | 9,570 | |
| Oklahoma | 2 | 1.9 | 9,330 | |
| Texas | 10 | 9.3 | 9,510 | |
| Mountain | 6 | 5.6 | 7,350 | 2.3:1 |
| Colorado | 3 | 2.8 | 7,050 | |
| Montana | 1 | 0.9 | 10,080 | |
| New Mexico | 1 | 0.9 | 7,770 | |
| Utah | 1 | 0.9 | 5,140 | |
| Pacific | 13 | 12.1 | 16,380 | 2.4:1 |
| California | 12 | 11.2 | 16,860 | |
| Washington | 1 | 0.9 | 10,560 | |

* Surgeries performed on employees and dependents of group health customers of Metropolitan Life Insurance Company.

† Percentages may add to more than 100 percent because of rounding.

Source: Claims data from Metropolitan Life Insurance Company merged and edited by Corporate Health Strategies, Inc.; computations and analyses by Health and Safety Education Division personnel.

## Table 2—Regional Variation in Charges for Prostatectomy* March 1, 1985–February 28, 1986

| | Average Costs ($) | | | | | | Percentage | |
|---|---|---|---|---|---|---|---|---|
| | | Hospital Charge | | | | | | |
| Geographic Area | Total Hospital & Physician | Total | Room & Board | Ancillary | Physician Charge | Average Length of Stay | Hospital of Total | Ancillary of Hospital |
| United States | **10,420** | 7,160 | 2,260 | 4,900 | 3,260 | 10.59 | 69 | 68 |
| New England | **9,200** | 5,960 | 2,330 | 3,630 | 3,240 | 9.00 | 65 | 61 |
| Middle Atlantic | **12,010** | 7,870 | 3,010 | 4,860 | 4,140 | 12.16 | 66 | 62 |
| New Jersey | **8,060** | 4,390 | 1,740 | 2,650 | 3,670 | 9.43 | 54 | 60 |
| New York | **13,690** | 8,780 | 4,040 | 4,740 | 4,910 | 13.29 | 64 | 54 |
| Pennsylvania | **15,180** | 11,460 | 3,360 | 8,100 | 3,720 | 14.40 | 75 | 71 |
| East North Central | **9,020** | 6,070 | 2,170 | 3,900 | 2,950 | 9.73 | 67 | 64 |
| Illinois | **10,950** | 7,570 | 2,570 | 5,000 | 3,380 | 10.33 | 69 | 66 |
| West North Central | **10,440** | 7,220 | 2,390 | 4,830 | 3,220 | 13.33 | 69 | 67 |
| South Atlantic | **7,900** | 5,340 | 1,730 | 3,610 | 2,560 | 10.08 | 68 | 68 |
| Florida | **9,660** | 6,430 | 1,790 | 4,640 | 3,230 | 9.25 | 67 | 72 |
| North Carolina | **5,810** | 3,920 | 1,500 | 2,420 | 1,890 | 11.00 | 67 | 62 |
| East South Central | **11,940** | 9,880 | 2,050 | 7,830 | 2,060 | 12.57 | 83 | 79 |
| West South Central | **9,500** | 6,190 | 1,670 | 4,520 | 3,310 | 9.73 | 65 | 73 |
| Texas | **9,510** | 6,180 | 1,830 | 4,350 | 3,330 | 10.60 | 65 | 70 |
| Mountain | **7,350** | 5,120 | 1,940 | 3,180 | 2,230 | 8.83 | 70 | 62 |
| Pacific | **16,380** | 11,610 | 3,120 | 8,490 | 4,770 | 10.00 | 71 | 73 |
| California | **16,860** | 12,160 | 3,240 | 8,920 | 4,700 | 10.25 | 72 | 73 |

* Surgeries performed on employees and dependents of group health customers of Metropolitan Life Insurance Company.

Source: Claims data from Metropolitan Life Insurance Company, merged and edited by Corporate Health Strategies, Inc., analysis and computations by Health and Safety Education Division personnel.

Note: Excludes states with fewer than five cases.

times the cost of the room and board, with considerable variation evident between regions. In the New England region, for example, ancillary service charges averaged 61 percent of the hospital bill compared with 79 percent in the East South Central states. By states, these charges differed by as much as 269 percent, ranging from $8,920 in California to $2,420 in North Carolina.

Though the study was limited in size, the regional distributions and breakdowns of hospital and physician charges for

Regional distributions and breakdowns of hospital and physician charges for prostatectomy are similar to those reported for other common surgical procedures.

prostatectomy are very similar to those reported for other common surgical procedures.[8] The reasons for the regional differences remain unexplained but may be attributed to various socio-demographic characteristics of the area, the type of hospital in which the surgery is performed and the prevailing medico-legal climate of the region, as well as the regional surgical training and practice of the physician. Whatever the reasons for this common elective surgical procedure, the patient would be well advised to investigate the type and amount of surgery suggested, the regional costs of the procedure and to seek a second opinion.[9] For most benign symptoms, the prostate condition is not life threatening, but is a quality of life issue, and thus, the decision to have a prostatectomy is usually a "judgment call" by the patient and his physician. Because of this, it is even more important for men to be aware of the efficacy, outcome and costs of various forms of the prostatectomy.[4] □

## References

[1] Lubitz, J., Riley, G., Newton, M.
"Outcomes of surgery among the Medicare aged: Mortality after surgery." *Health Care Financing Review* 6(4): 103-115, 1985.

[2] National Center for Health Statistics.
"1985 Summary: National Hospital Discharge Survey." *Advance Data from Vital and Health Statistics* No. 127. DHHS Pub. No. (PHS) 86-1250. Hyattsville, Md., Public Health Service, Sept. 25, 1986.

[3] Haug, J.N., Polister, P.E. (eds.) *Socioéconomic Factbook for Surgery, 1987.* Chicago, Ill., American College of Surgeons, 1987. Haug, J.N., Seeger, R. (eds.) *Socioeconomic Factbook for Surgery, 1982.* Chicago, Ill., American College of Surgeons, 1982.

[4] Wennberg, J.E., Roos, N., Sola, L., Schori, A., Jaffe, R.
"Use of claims data systems to evaluate health care outcomes: Mortality and reoperation following prostatectomy." *JAMA*. 257(7): 933-936, 1987.

[5] Meyhoff, H.H., Nordling, J., Hald, T.
"Economy in transurethral prostatectomy." *Scand. J. Urol. Nephrol.* 19: 17-20, 1985.

[6] Rothenberg, R.E. (ed.)
"The prostate gland." Pages 426-437 in *Understanding Surgery.* New York, N.Y., Trident Press, 1965.

[7] National Center for Health Statistics. Kozak, L.J., Moien, M.
"Detailed diagnoses for surgical procedures for patients discharged from short-stay hospitals: United States, 1983." *Vital and Health Statistics.* Series 13, No. 82 DHHS Pub. No. (PHS) 85-1743, Public Health Services, Washington, D.C.: GPO, 1985.

[8] *SB* Editors. *Costs of Common Surgical Procedures by State: A Monograph of 1985/1986 Articles.* New York, N.Y., *Statistical Bulletin*, 1987.

[9] Schlossberg, S.M., Finkel, M.L., Vaughn, E.D., Jr., Jensen, D., Riehle, R.A., Jr., McCarthy, E.G.
"Second opinion for urologic surgery." *J. of Urology*, 131: 209-212, February 1984.

# Capsule Briefs

## are timely literature selections with broad reader interest

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### Some Oriental, Occidental and Incidental Conditions

Two recent reports from the *ORIENT* contained good and bad news. From China, we learned that women's high lung cancer rates in Xuan Wei County, Yunnan Province, may be linked to high indoor concentrations of coal and/or wood smoke resulting from tending poorly ventilated fires and not to tobacco use, as had been suspected (Mumford, J.L., *et al*, **Science**, 235:217-220, January 9, 1987.) • • • From Japan comes the cheery news about its coronary heart disease mortality rates, which have always been very low compared with other affluent countries. On an age-adjusted basis, these rates declined in 30-69-year-old men and women by 24 percent and 37 percent, respectively, from 1968-78. (Ueshima, H., *et al*, **American Journal of Epidemiology**, 125:62-72, 1987.) • • • Out of the *WEST* (Canada), from a sizable population genetics study, it was reported that susceptibility to multiple sclerosis seems to have a major genetic component, surely major news, even if not yet readily clinically applicable. (Ebers, G.C., *et al*, **The New England Journal of Medicine**, 315: 1638-42, 1986.) • • • From the United States comes a report of another breakthrough in genetics, this time involving the psychiatric condition: manic-depressive psychosis. Genetic researchers have reported finding a "marker" on chromosome 11 that identifies the carrier of the dominant gene for this severe disease, which affects 60-70 percent of carriers. (Kolata, G., **Science**, 235: 1139-40, 1987.) • • • Also in the United States, an important epidemiological study of the prevalence of Alzheimer's Disease in an elderly middle-class population living in a southern California retirement community, in which the age- and sex-adjusted prevalence rate was 15.3 percent (19.1 percent among men, and 13.1 percent in women): Both the relatively high prevalence and the higher rate in men are greater than shown in other less well-designed studies. (Pfeffer, R.I., *et al*, **American Journal of Epidemiology**, 125:420-36, 1987.) • • • A British report found that men smokers cannot quit too soon, if avoiding heart attacks (HAs) is important. Ex-smokers, after 6.2 years, had only a slightly improved HA death rate than continuing smokers. In both former and current smokers the number of years that men smoked cigarettes was the clearest indicator of HA risk. (Cook, D.G., *et al*, **Lancet**, 2: 1376-80, 1986.) □

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### Now is the Time to Prevent AIDS

AIDS is a disease which will alter the quality of social life worldwide for at least the next 20 years. Given this apocalyptic assessment, what preventive steps should be taken? Here is a short, but thought-provoking editorial which deserves to be widely read. It concludes, "AIDS will be with us for years, unfortunately. How soon we take definitive action may well influence the course of this public health problem for many decades to come • • • We cannot wait any longer." (Drotman, D.P., **American Journal of Public Health**, 77: 143, 1987.) □

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## Medical Complications of Cocaine Abuse

"Cocaine is becoming widely recognized as one of the most dangerous illicit drugs in common use today," observes this excellent report which seems to have such frightening public health implications. (Cregler, L.L., and Mark, H., **The New England Journal of Medicine**, 315: 1495-1500, 1986, with 95 references.) One fears that cocaine complications like heart attacks, strokes, and hemorrhages in pregnancy, may become common in the future. ••• The same authors report a case study of a fatal stroke in a 63-year-old man who was a frequent cocaine user. (**New York State Journal of Medicine**, 87:128-9, 1987.) More public health education is clearly needed to increase awareness of the permanent impairments and death resulting from cocaine abuse. □

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## American Culture May Be Hazardous For One's Health

In this sensitive study, the problem of coping with job loss was analyzed and the attributes of those who coped well and poorly were compared and contrasted. Those who coped best had good personal support systems in the form of family and friends. (ISR Newsletter, Autumn 1986, p. 4.) ••• The hidden side of wars is the part that haunts societies long after the violence stops. In this study of Vietnam veterans during their first five years after the war, it was shown that they continued to have adjusted death rates 45 percent higher than non-Vietnam veterans. (Centers for Disease Control Vietnam Experience Study, **JAMA**, 257:790-795, 1987.) Surely a society intelligent enough to discover an effect like that could also find ways to prevent its cause. □

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## The Ups and Downs of Containing Medical Care Costs

You may be pleased to know that nearly 10 percent of Americans now have the option to get health care from those cost-containing preferred provider organizations (PPOs). (**American Medical News**, January 9, 1987.) ••• On the down side, a notable author has written that all present cost containment methods (like PPOs) will have short-term effects. Long-term problems (viz. population growth, new technology, excess providers) will prevail in the 1990s. (Schwartz, W.B., **JAMA**, 257:220-224, 1987.) Are you prepared for more drastic measures? □

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# Trends in Ectopic Pregnancies: United States 1970 to 1985

Some 75,000 ectopic pregnancies (EPs) occurred in the United States in 1985.[1] EPs are those in which the fertilized ovum is implanted *outside* the uterus, usually in the fallopian tube; the fetus rarely develops past three months, and the condition almost always requires surgery. The incidence of this relatively rare complication of pregnancy has more than quadrupled since 1970 and it is estimated that one in every 103 to 140 U.S. pregnancies is ectopic.[2,3] Similar trends are evident elsewhere: i.e., England and Wales report EP rates increase 4.8 percent, annually; rates in Lund, Sweden, increase by 6 percent each year; and EP incidence in Canada has risen 63 percent between 1970 and 1980.[4,7]

> Though relatively rare, the incidence of ectopic pregnancy has more than quadrupled since 1970.

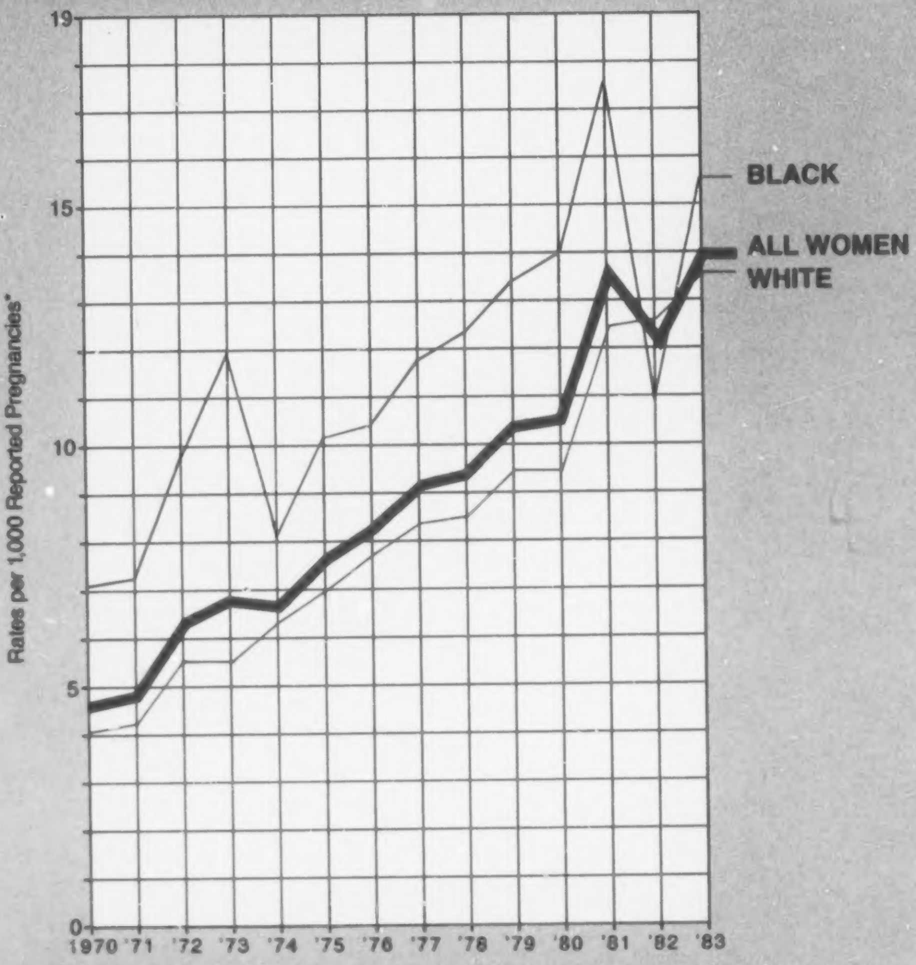
EPs represent an increasing and serious public health problem—they are the principal cause of first trimester deaths among pregnant women and account for around 10 percent of all maternal deaths in this country each year.[2,5,8,9] An EP can also have devastating long term effects. For example, after one such pregnancy, a woman's reproductive capacity is severely reduced. Ten to 20 percent of the women will have a repeat ectopic pregnancy, and some will require the removal of the remaining fallopian tube. Among the factors with a significant predisposing influence on EPs are: race (nonwhite women are at increased risk); age (risk increases with age); history of sexually transmitted diseases and pelvic inflammatory infections; failed tubal sterilization; certain contraceptive practices (postcoital estrogens, birth control pills containing only progesterone and possibly the intrauterine device); fertility induced by ovulating agents; and in-utero exposure to stilbestrol.[5,10,14] The inter-relationship of these risk factors and the etiologic significance of individual ones need continued study.

Whether the EP rate is calculated per reported pregnancy (live births, legal abortions and ectopic pregnancies), as presented by the Centers for Disease Control (CDC), or per 1,000 women aged 15-44, ectopic pregnancies are increasing dramatically. The following report updates the CDC Surveillance Summary of EPs.[4] Rates for 1980 through 1985 have been calculated using the female civilian population aged 15-44 and are based on first-listed diagnoses for patients discharged from non-federal short stay hospitals in the United States. Ectopic pregnancies are those cases included in Code 633 of the International Classification of Diseases, Ninth Revision (ICD 9) for 1979-1985 and ICD 8 Code 631 for years 1970 to 1978.

## Incidence

As seen in Figure A, the rate of ectopic pregnancies increased each year except in 1982, and the rates are fairly consistently higher among black women than white.

Figure A—Rate of Ectopic Pregnancies
Women Aged 15–44, by Race
United States, 1970 to 1983



*Reported pregnancies = live births, legally induced abortions, and ectopic pregnancies.
Source: Centers for Disease Control, Reference #4.

## Table 1—Number and Rate* of Ectopic Pregnancies by Age United States, 1980 to 1985

| | 1980 | | 1981 | | 1982 | | 1983 | | 1984 | | 1985 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ages | Number | Rate | Number | Rate | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| 15-44† | 48,293 | 0.9 | 60,877 | 1.1 | 57,917 | 1.0 | 65,541 | 1.1 | 71,607 | 1.2 | 74,940 | 1.3 |
| 15-19 | 1,496 | .1 | 2,540 | .3 | 3,919 | .4 | 2,414 | .3 | 3,367 | .4 | 3,503 | .4 |
| 20-24 | 15,851 | 1.5 | 16,558 | 1.5 | 9,818 | .9 | 13,055 | 1.2 | 13,692 | 1.3 | 19,295 | 1.9 |
| 25-29 | 15,856 | 1.6 | 23,049 | 2.3 | 22,804 | 2.2 | 23,014 | 2.2 | 26,771 | 2.5 | 24,361 | 2.3 |
| 30-34 | 11,034 | 1.2 | 14,198 | 1.5 | 15,400 | 1.6 | 17,698 | 1.8 | 22,452 | 2.3 | 16,997 | 1.7 |
| 35-44 | 4,056 | .3 | 4,532 | .3 | 5,976 | .4 | 9,360 | .6 | 5,325 | .3 | 10,784 | .7 |

Rate per 1,000 women aged 15-44.
Adjusted on basis of age distribution of the United States total population, 1940.
ource: National Center for Health Statistics; computations by Health and Safety Education
ersonnel, Metropolitan Life Insurance Company.

Between 1970 and 1983 (the last year for which data by race and pregnancy classification are available), the EP rates increased by more than 3-fold for white women aged 15-44 and 2.2-fold for blacks. The overall rate for this period was 9.2 per 1,000 pregnancies. The black rate of 11.9 is 42 percent higher than that for the white women and 29 percent above the rate for all women. Over the years, the rates increased steadily among white women, whereas, among blacks, decreases in rates occurred in 1974 and 1982. The racial differences in rates of ectopic pregnancy appear to be

Over the years, the rates increased steadily among white women, whereas, among blacks, decreases occurred in 1974 and 1982.

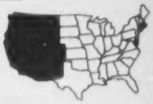
diminishing; in 1970 the rate among blacks was 1.78 times that of the whites and in 1983 it had dropped to around 1.14.

By 1986, more than 710,000 ectopic pregnancies had been reported in the United States since 1970. Between 1980 and 1985, the incidence of EPs increased 55 percent. As the data in Table 1 indicate, when the rates are calculated for women aged 15-44, the largest number and rate of ectopic pregnancies occur among women aged 25-29. Over this six-year period, relative increases are greater among the youngest and oldest women than in any of the other age groups. Modest increases in the number of EPs are evident across most age groups in each year except 1982 when the total number dropped by 5 percent. This 1982 decrease is partially attributed to the disproportionately higher than expected number of EPs in 1981, particularly among 25-29 year olds—a phenomenon still awaiting further explanation.[4] The 1982 decrease in incidence is evident only among women in their 20s, mainly those aged 20-24.

## Table 2—Numbers* and Rate† of [illegible]opic Pregnancies by Region, United States, 1980 to 1985 and Average Length of Hospital Stay, 1984

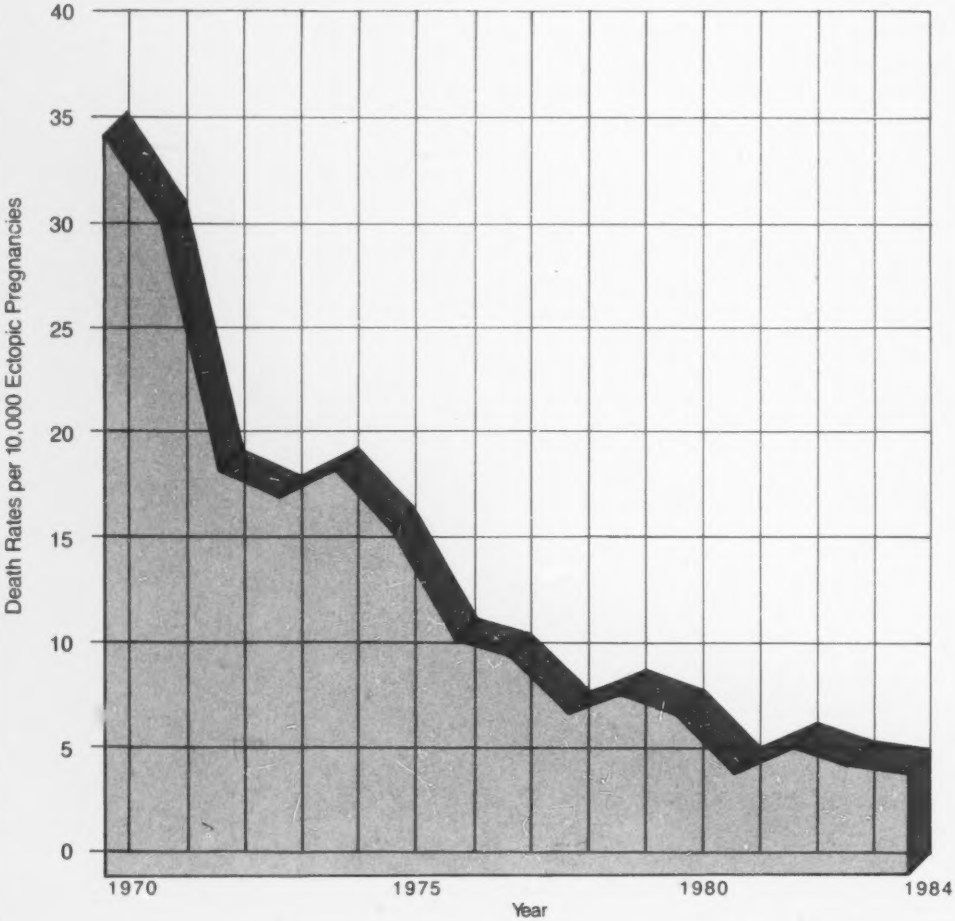
**Women Aged 15 – 44**

| Region | 1980 |  | 1981 |  | 1982 |  | 1983 |  | 1984 |  | 1985 |  | 1984 Average Length of Stay (Days) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | No. | Rate | No. | Rate | No. | Rate | No. | Rate | No. | Rate | No. | Rate |  |
| Northeast | 12 | 1.1 | 13 | 1.1 | 13 | 1.1 | 10 | 0.9 | 12 | 1.0 | 11 | 0.9 | **5.25** |
| Midwest | 13 | 1.0 | 17 | 1.2 | 15 | 1.1 | 18 | 1.3 | 19 | 1.4 | 19 | 1.4 | **4.84** |
| South | 16 | .9 | 21 | 1.2 | 18 | 1.0 | 23 | 1.2 | 26 | 1.4 | 30 | 1.5 | **4.74** |
| West | 11 | 1.1 | 18 | 1.7 | 16 | 1.5 | 19 | 1.7 | 19 | 1.7 | 19 | 1.6 | **3.61** |



* Number of all listed diagnoses in thousands.
† Rate per 1,000 women aged 15-44.
Source of basic data: Unpublished data from National Center for Health Statistics; computations by Health and Safety Education personnel, Metropolitan Life Insurance Company.

**Figure B — Ectopic Pregnancy Death Rates**
**Women Aged 15–44**
**United States, 1970 to 1984**



Source: Centers for Disease Control, published and unpublished data.
Computations by Health and Safety Education personnel, Metropolitan Life Insurance Company.

## Geographic Difference

The distribution of ectopic pregnancies varies by geographic region of the country (Table 2). In 1985 the rate in the West was 78 percent higher than the rate in the Northeast. Between 1981 and 1985, the EP rates per 1,000 women aged 15-44 have consistently been higher in the West; the low rates have fluctuated somewhat over this period but now seem to be concentrated in the Northeast. The EP incidence, however, tends to be highest in the South and lowest in the Northeast. In 1985, 38 percent of the ectopic pregnancies occurred in the South where the incidence was over twice that of the Northeast. The average length of hospital stay associated with an EP was 4.6 days. Women in the Northeast remained in the hospital for the longest period—5.3 days versus 3.6 days on the average for women in the West.

As the number and rate of ectopic pregnancies have increased, the death rate from EPs has decreased.

## Mortality

As the number and rate of ectopic pregnancies have increased, the death rate from EPs has decreased (Figure B). In 1984 an estimated 39 deaths in this country were attributed to ectopic pregnancies, producing a rate of 5.1 per 10,000 EPs. Between 1970 and 1984, the death rate dropped by around 86 percent—from 35.5 per 10,000 EPs to 5.1. Although the EP death rates remain higher among black than white women, similar decreases in rates are evident through 1983—a 6.6-fold decrease among whites and a 6.4-fold decrease among blacks.[2] This encouraging trend is offset, however, by the fact that as the deaths rates decreased, the proportion of all EP-caused maternal deaths has increased.[14]

As women continue to delay childbirth, and the rates of sexually transmitted diseases continue to increase, the number and rate of ectopic pregnancies are expected to continue to rise. While an unknown percentage of ectopic pregnancies resolve themselves spontaneously, the overwhelming majority of these conditions (those that don't invariably end in death) result in surgery. The hospital length of stay for an EP has decreased from 7.2 days in 1970 to 4.6 days in 1984. However, the costs in terms of fetal losses and maternal treatment, recovery and diminished or lost reproductive capacity continue to increase.

Improved diagnostic techniques may be responsible for some reported increases in EPs and for the decreases in maternal mortality from the condition.

Improved diagnostic techniques may be responsible for some of the reported increases in ectopic pregnancies and for the decreases in maternal mortality from the condition. Refined and rapid hormonal tests, increased utilization of laparoscopy and acceptance of diagnostic ultrasound equipment deserve much credit and continued support. More needs to be done, however, in terms of educating women, particularly minority women, about the importance of early prenatal care and the association between sexually transmitted diseases and ectopic pregnancy risk. The discrepancy between the white and nonwhite woman's risk of an EP and the mortality differentials that continue to exist attest to the fact that special educational efforts must be directed at high risk groups. In addition, continued surveillance and improved professional and lay education are needed to encourage early recognition and treatment of an EP. Early intervention will further decrease mortality associated with ectopic pregnancies.[11]

## References

[1] National Center for Health Statistics, Graves E (unpublished data for 1984 and 1985). Lawrence L "Detailed diagnoses and procedures for patients discharged from short stay hospitals, United States, 1984." *Vital and Health Statistics* Series 13, No 86. DHHS Pub No (PHS) 86 1747 Washington, D C U S Gov Printing Office, 1986

[2] Lotter FD "The increasing problem of ectopic pregnancies and its impact on patients and physicians." *J Reprod Med* 31(2) 74 77, 1986

[3] Rubin GL, Peterson HB, Dorfman SF, Layde PM, Maze JM, Ory HW, Cates W Jr "Ectopic pregnancy in the United States 1970 through 1978." *JAMA* 249(13) 1725 1729, 1983

[4] Atrash HK, Hughes JM, Hogue CJR "Ectopic pregnancy in the United States, 1970 1983." *Morbidity and Mortality Weekly Report CDC Surveillance Summaries* 35(2SS) 29SS 37SS, 1986

[5] Beral V "An epidemiological study of recent trends in ectopic pregnancy." *Brit J Obstet Gynecol* 82 775 782, 1975

[6] Westrom L, Bengtsson LPH, Mardh PA "Incidence, trends and risks of ectopic pregnancy in a population of women." *Brit Med J* 282 15 18, 1981

[7] Hockin JC, Jessamine AG "Trends in ectopic pregnancy in Canada." *Can Med Assoc J* 131 737 740, 1984

[8] Dorfman SF "Deaths from ectopic pregnancy, United States, 1979 to 1980." *Obstet Gynecol* 62(3) 334 338, 1983

[9] Barnes AB, Wennberg CN, Barnes BA "Ectopic Pregnancy: Incidence and review of determinant factors." *Obstet Gynecol Survey* 38(6) 345 356, 1983

[10] Schenker JG, Evron S "New concepts in the surgical management of tubal pregnancy and the consequent post operative results." *Fertil Steril* 40 709 712, 1983

[11] Schneider J, Berger CJ, Cattell C "Maternal mortality due to ectopic pregnancy. A review of 102 deaths." *Obstet Gynecol* 49 557 561, 1977

[12] Ory HW "Ectopic pregnancy and intrauterine contraceptive devices. New perspectives." *Obstet Gynecol* 57(2) 137 144, 1981

[13] World Health Organization's Special Programme of Research "A multinational case control study of ectopic pregnancy." *Clin Reprod and Fertil* 3 131 143, 1985

[14] Weckstein LN "Current perspective on ectopic pregnancy." *Obstet Gynecol Survey* 40(5) 259 272, 1985

[15] Dorfman SF, Grimes DA, Cates W Jr, Binkin NJ, Kafrissen ME, O'Reilly KR "Ectopic pregnancy mortality, United States, 1979 to 1980. Clinical aspects." *Obstet & Gynecol* 64 386 390, 1984

# STATISTICAL INFORMATION, PLEASE

**Q** *Why did you use elbow breadth instead of wrist circumference to determine frame size in your 1983 Metropolitan Height and Weight Tables?*

**A** Both elbow breadth and wrist circumference are useful measurements for distinguishing frame size in men and women, since these two measurements are unaffected by degree of adiposity (fatty tissue) and are comparatively easy to use in a routine examination. It is true that wrist circumference could be more easily and accurately determined than the diameter of the elbow. However, since adequate population data by wrist size were not available, the elbow breadth measurement was used. Bear in mind, however, that any bony dimension such as the ankle or knee may have similar value in assessing frame size.

* * * * * * * * * * * * * * * * * * * * * * * * *

**Q** *What is the life expectancy of a centenarian?*

**A** According to the U.S. Decennial Life Tables for 1979-81, latest data available, the number of years of life remaining for the average centenarian is 2.7 years. A man aged 100 can be expected to survive an additional 2.5 years; for a woman the number is 2.8 years.

* * * * * * * * * * * * * * * * * * * * * * * * *

**Q** *Three frequent questions about the United States population: What is the age composition in broad age groupings? How has the age distribution changed since the beginning of the century? What is the population size projected to become?*

**A** Between 1900 and 1986 there has been a dramatic change in the age composition of the U.S. population. The aging of the population is projected to continue well into the 21st century. The distribution of the U.S. resident population as of July 1, for 1900, 1986 and 2080, by age, is shown in the table below.

**U.S. Resident Population (In Thousands)**

| | | | | Percent Distribution | | |
|---|---|---|---|---|---|---|
| Age | 1900 | 1986 | 2080 | 1900 | 1986 | 2080 |
| All Ages | 76,094 | 244,419 | 310,235 | 100.0 | 100.0 | 100.0 |
| Under 18 | 30,715 | 63,898 | 63,166 | 40.4 | 26.1 | 20.3 |
| 18-64 | 42,280 | 151,259 | 173,980 | 55.5 | 61.9 | 56.1 |
| 65 + | 3,099 | 29,262 | 73,089 | 4.1 | 12.0 | 23.6 |

Source: Reports of the Bureau of the Census.

Please send your questions to: Statistical Information Editor
Health and Safety Education Division, Dept. SB
Metropolitan Life Insurance Co.
One Madison Avenue
New York, NY 10010-3690

# Individualized Care, Special Attention

It was a rainy night in Chicago when Bill, a 40-year-old engineer, was driving home. His car skidded on the wet road. He hit a tree. As a result of the accident, Bill suffered multiple contusions, a head injury, fractured ribs, memory loss and an inability to do many of the things we take for granted—like getting dressed and feeding ourselves.

Fortunately, Bill's insurance coverage, which is with Metropolitan Life, included Medical Case Management (MCM), a program designed to provide the seriously ill with individualized long-term care and rehabilitation.

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Bill was diagnosed as having a "closed head injury" and, with Shelley's help, was transferred to a head injury treatment center for comprehensive therapy for three months. He then received extensive outpatient care for an additional six months.

Normally, the recovery time of a patient with a closed head injury is two to three years. Fortunately, Bill made excellent progress within nine months.

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# Historical Perspectives

## 40 YEARS AGO

### IN THE **1947** STATISTICAL BULLETIN

**The kitchen was labeled the most dangerous room in the house.** Studies among Metropolitan policyholders and other groups estimated that about 6,000 persons in the United States died annually during the mid-1940s from kitchen accidents; numerous others were injured. Generally the center of domestic activities, the kitchen often exposed the family to hazards such as burns and scalds, cutting, contact with electricity, and falls. Burns and scalds were the most frequent causes of kitchen fatalities, claiming over 2,000 victims annually—mainly women. Falls ranked second, causing around 1,500 deaths yearly. The kitchen was considered a combination factory, bakery, cannery, laundry, butcher shop, restaurant and household workshop as well as a play area. In industry, similar hazards existed but were monitored and controlled by state agencies. In the home, this family responsibility generally fell under the control of the woman. (Page 6, February)

**Mortality for the black population was improving,** but was still much higher than that for whites. A study among Metropolitan Life Industrial policyholders by age, race and sex, for 1942-46, confirmed this. The widest disparity in mortality between the two races occurred in adolescence and early adult life. The ratio at ages 15-19 was about 2:1 black to white men; among women it was well over 3:1 at ages 15-24 years. Chief among the leading causes of death among blacks were cardiovascular-renal diseases, tuberculosis, syphilis and homicide. There was, however, a favorable side to the mortality picture. Between 1911 and 1945, death rates among blacks declined by more than 50 percent. Large decreases were recorded for the preventable diseases and the principal communicable childhood diseases. Improvement in mortality was reflected in life expectancy so that, within the 35-year period, expectation of life for a black male aged 10 years increased from 41.3 years to 52.5 years. A black female of the same age had an even larger gain, from 41.3 years to 55.5 years. (In 1984 the life expectancy for a black male aged 10 was 57.2 years and for a female of the same age it was 65.3 years—ed.) (Page 7, March)

**Metropolitan Life statisticians recounted the progress made in life and health conservation** in 1947, when the American Medical Association celebrated its 100th anniversary. During the century, mortality from all causes, and especially from infectious diseases, declined considerably. Historical review revealed that, before the mid-19th century, epidemics occurred with devastating results. The 1793 yellow fever outbreak in Philadelphia claimed over one-eighth of the city's population; five years later another epidemic of the disease took one-tenth of the city's population. In 1832 a cholera epidemic in New Orleans killed over one-tenth of that population. Since then, with the exception of the 1918-19 influenza-pneumonia epidemic, the early 20th century had been virtually free of major epidemics. So, as the A.M.A. began its second century, emphasis shifted from controlling infections to more concern with degenerative and chronic diseases of later life—those of longer duration rather than of acute conditions. (Even now, the problems change and the medical profession is challenged to solve them, e.g., growing recognition of Alzheimer's Disease prevalence, and the increased worldwide incidence of AIDS—ed.) (Page 1, May)

**The importance of hospitalization in medical care** was examined by Metropolitan statisticians. In 1946 more than 15 million patients were admitted to hospitals—about double the number admitted in 1935. During this same period, the U.S. population increased by 10 percent and the bed capacity of hospitals expanded by 37 percent. With the rapid development of group hospital plans since the mid-1930s, more people began to use hospitals. By the mid-1940s about one-third of the U.S. population was covered by such plans. Births in hospitals increased from 800,000 in 1935 to about 2.6 million in 1946, while hospital deaths rose from 520,000 to 650,000 during the same period. Hospitals were hard-pressed to meet the demand for their services. Hospital usage was lowest in the East South Central and South Atlantic states and highest in the Pacific states. Variation in usage mirrored the availability of hospital facilities, the level of family income and accessibility of hospitals, as well as the health consciousness of the population. More hospitals and health centers were needed, especially in the South. In addition, it would be necessary to train more doctors, nurses and technicians to serve these facilities. (Page 7, December)

**The chances of marrying at an early age** were greater in the United States than in any other country of the western world. A comparison of age at marriage between the U.S. population (1940) and 15 other western countries confirmed this. Among U.S. women aged 15-19, 12 percent were married at the time of the 1940 Census. Whereas, in France and Canada—countries most closely approaching the U.S. experience—only 6 percent were married by that age. Young women in Germany, the Irish Free State and Norway had the least likelihood of early marriage. U.S. women also had the best prospects for eventual marriage. The 1940 Census showed that 91 percent of U.S. women aged 45 and over were either married or had been married; in France, Canada and Germany the proportions were also high. Germany was among the lowest on the list for early marriage among women. Marriage of men under 20 was rare in all countries studied, but in the United States about 2 percent were married by the 1940 Census. Economic stability, good employment opportunities at relatively high wages were factors contributing to early marriage in the United States. (In 1985, the median age at first marriage in the United States was 25.5 for men and 23.3 for women—ed.) (Page 8, February)

## Coming in Future Issues

- Mortality From Homicide: An Update
- Costs of Cataract Surgery
- Population of Canada by Province
- Stomach Cancer: Mortality by State

**Printer's Error**

Re Costs of Prostatectomy.
**Statistical Bulletin** Vol. 68, No.3, page 16, July-September 1987.

Our pie is awry! Please insert this correct version of Figure A on page 16 of this issue.

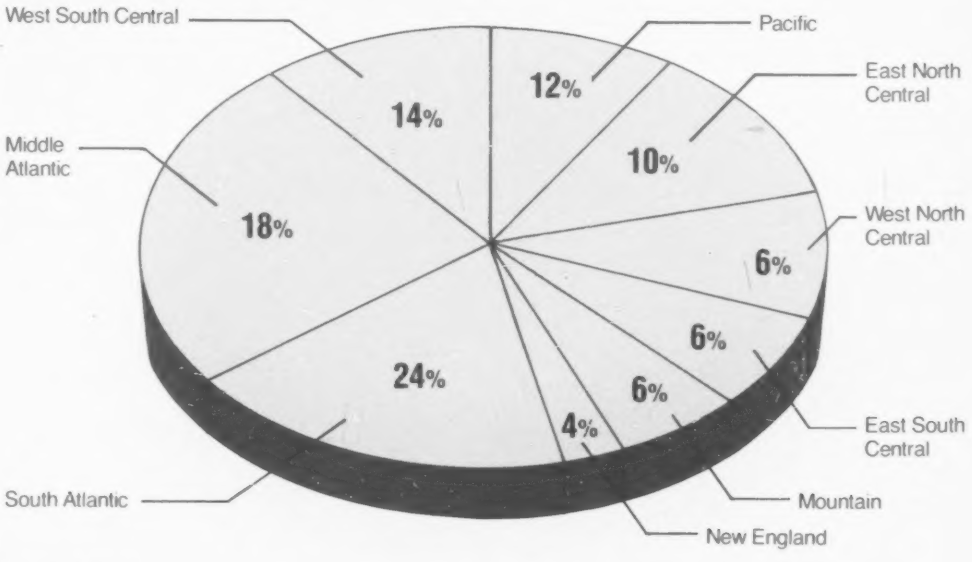
**The Editors**

registered an age-adjusted rate of 128.7 per 10,000 Medicare enrollees, followed by the North Central area with 125.6, the South with 119.2 and the Northeast with 114.0. As the surgical rates vary by geographic area, so do the charges for these procedures. Using claims data from employed persons insured under group contracts issued by Metropolitan Life, we analyzed the charges for a prostatectomy, exclusive of TURP, by geographic areas.

The study group consisted of 107 "typical" prostatectomy operations performed in the continental United States between March 1, 1985, and February 28, 1986, on men ranging in age from 42 to 64 (median age of 61 years). The charges described are average medical and surgical fees (excluding those of anesthesiologists and radiologists), and billed hospital charges for CPT-4* codes 55801-55845. Presentation of the claims data are restricted to states in which at least five prostatectomies were performed; these data are 61 percent of the reported cases in the Metropolitan Life file.

As seen in Figure A, the distribution of these operations varied by geographical

## Figure A — Percent Distribution of Prostatectomy Costs by Geographic Division, United States
## March 1, 1985 — February 28, 1986



Source: Table 1

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# SB

# STATISTICAL BULLETIN

Vol 68 No 4 Oct – Dec 1987

2 **Alcohol Use Among Children and Adolescents.** Startling findings reveal the depth of the nation's No. 1 drug problem. Plus an editorial, "A Fearsome Problem" that underscores the cultural gravity of this national concern.

12 **Just Say No!** In this commentary, Otis R. Bowen, M.D., Secretary, U.S. Department of Health and Human Services, talks about what can be done to help avert drug and alcohol use among our nation's children.

13 **Homicide: A Current Overview.** Study analyzes this complex cause of death with its highly diverse mortality patterns.

24 **Regional Variation in Costs of Cataract Surgeries.** Recent data from Met Life's group insured show significant in-hospital cost differences for this increasingly common procedure.

31 **Canada's Changing Population.** Analysis of Canada's recent population census with a glimpse of trends in provincial growth rates.

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# From The Editor's Desk

Most of us adults have been amused by those two folksy actors who advertise wine coolers on television. What we discover in this issue, which is *not* so amusing, is that 26 percent of children as young as fourth graders report that their peers drink wine coolers. This and other data represent what *SB* believes may be "a hidden side" of alcohol abuse in the United States: the extent of consumption among children and adolescents.

In a separate editorial, the editors of *SB* express concern for our society's future social welfare if this problem is to remain uncontrolled.

In a companion commentary from the federal level, Otis R. Bowen, M.D., Secretary, U.S. Department of Health and Human Services, describes help that is available for education and prevention programs. It is further evident from this federal perspective that alcohol abuse in the young is national in scope. While not alone in having an alcohol problem among its young people, perhaps the United States can be among the ranks of those nations taking effective actions against it.

## Complexity of Homicide

Along with childhood alcohol abuse, homicide, unfortunately, is also a very real part of life. As *SB* analyzed this complex leading cause of death, we were reminded that though vital statistics *chronicle* homicides, *control* of homicide must involve all of society, not simply "public health." Having statistically documented homicide, we humbly slip back into the ranks, hoping that someone can show us another role besides "statistician," but uncertain where to look for that direction.

## Cataract Surgery

Cataract surgery has become an ever larger part of the United States' annual medical bill. In this issue *SB* examines those procedures that occurred in-hospital among Metropolitan Life group policyholders in 1985-86. Length-of-stay and charges data are quite remarkable. Do you agree?

## Canadian Census

Also in this issue, the Bulletin salutes Canada, a dynamic country of people from diverse ethnic stock. With an analysis of Canada's growing population by province, the article describes numerically the centers of population and provides us with a glimpse at trends in her growth.

On that expansive note, I wish you further good reading.

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*The Statistical Bulletin will publish comment and criticism from readers about its contents. Alternate interpretations of data analyses or different points of view about subjects are particularly welcome. Use address at end of publisher's statement, opposite page.*

# Alcohol Use Among Children and Adolescents

Alcohol is by far the most widely used, accessible drug among American youth today and its popularity is growing. More than two-thirds of our 12-to-17-year-olds have used beer, wine or hard liquor in the past year, and about one-third of them are current drinkers.[1]

> About one-third of 12-to-17-year-olds are current drinkers of alcohol.

The news is also grim at younger ages, where 50 percent of fourth-graders do not think of alcohol as a drug. Through the older elementary years this proportion increases. Peer pressure to drink in early years may be more intense than generally understood. More than one-third of children in grade school indicate "some" to "a lot" of peer pressure to try alcohol by the fourth grade. In other words, drinking alcohol is perceived to be socially important for a majority of our very young.

Alcohol use is beginning at earlier and earlier ages. National surveys indicate that the mean age for first use of alcohol is 12.3 years. Smaller regional studies, however, find the average age for the first alcoholic drink to be *around 8 years.* By the 12th grade, 93 percent of seniors have tried alcohol, more than 66 percent have used it within the past month and 5 percent are regular (daily or near daily) users. Historically, boys have begun drinking alcohol earlier, more

## A Fearsome Problem

Anthropologists have found that through child care a society successfully transmits its cultural heritage from generation to generation. Alcohol use by children, however, can warp that process. With such abuse, the risks increase for mildly brain damaged and socially handicapped children who later cannot assume mature, responsible and productive adult roles.

Few *Statistical Bulletin* reports in recent years have caused the editors such concern for the country's future as the report in this issue on childhood drinking.

After reading the article, some may conclude that *SB* expresses too much alarm. They may say that children exaggerate when asked about their drinking, or that *The Weekly Reader* survey's methodology is not valid for generalizations extended to the entire country. Yet others may counter that real alcohol abuse is usually *understated* in most surveys. We suspect that the two types of errors may be offsetting, and that whatever faults exist in the estimates reported in the article, the findings constitute a source of serious national concern, even if limited to the children responding. *SB* fears that the problem is as stated: *serious in nature and national in scope.* We hope that this article will help attract more attention to this almost invisible but fearsome problem. □

***The Editors***

*David Johnson*

## Table 1 — Prevalence and Recency of Use of 10 Major Types of Drugs United States High School Seniors, 1986

| | Ever Used | Past Month | Past Year Not Past Month | Not Past Year | Never Used |
|---|---|---|---|---|---|
| Marijuana Hashish | 50.9 | 23.4 | 15.4 | 12.1 | 49.1 |
| Inhalants* | 15.9 | 2.5 | 3.6 | 9.8 | 84.1 |
| Hallucinogens | 9.7 | 2.5 | 3.5 | 3.7 | 90.3 |
| Cocaine | 16.9 | 6.2 | 6.5 | 4.2 | 83.1 |
| Heroin | 1.1 | .2 | .3 | .6 | 98.9 |
| Stimulants** (adjusted for inappropriate reporting) | 23.4 | 5.5 | 7.9 | 10.0 | 76.6 |
| Sedatives** | 10.4 | 2.2 | 3.0 | 5.2 | 89.6 |
| Tranquilizers** | 10.9 | 2.1 | 3.7 | 5.1 | 89.1 |
| Alcohol | 91.3 | 65.3 | 19.2 | 6.8 | 8.7 |
| Cigarettes | 67.6 | 29.6 | (38.0)† | | 32.4 |

* Data based on four questionnaire forms and represent views of approximately 12,100 seniors

** Only those drugs not ordered by a physician

† The combined total for the two columns is shown because the question asked did not discriminate between the two answer categories

Source: High School Senior Survey, National Institute of Drug Abuse, 1986

National surveys indicate that the mean age for first drink of alcohol is around 12 years.

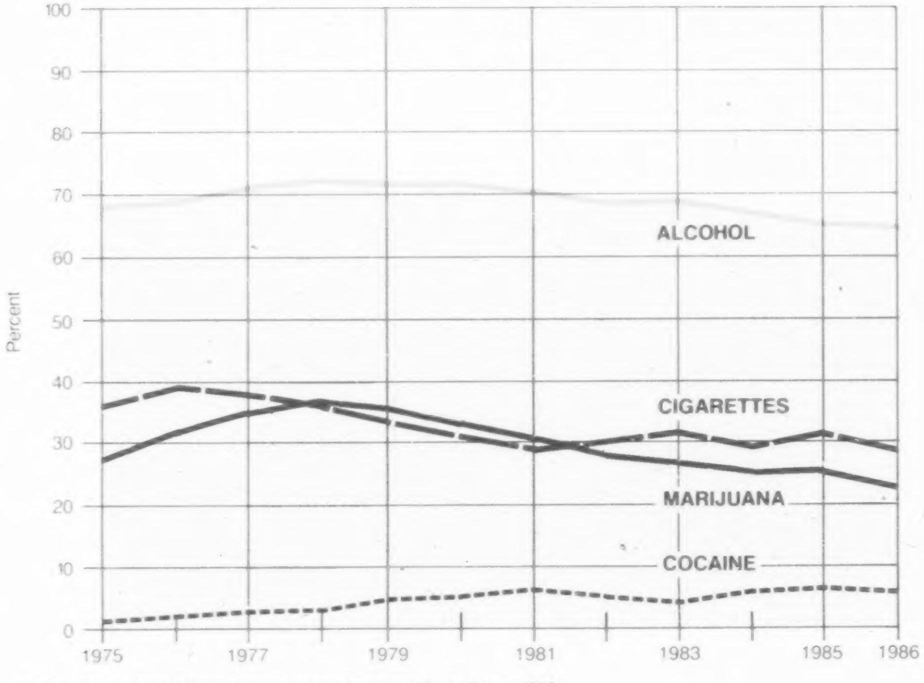
frequently and more heavily than girls, but this difference is becoming less pronounced. Reports indicate that the number of young girls who drink alcohol has been increasing faster than their male counterparts, so that now the initiation of drinking behaviors becoming increasingly similar betwee boys and girls

These alarming statistics have obvi medical and psychological consequen In 1985 the National Institute on Alcoh Abuse and Alcoholism estimated that a 4.6 million teenagers experienced "seri alcohol-related problems." The Nation Council on Alcoholism, Inc. reminds us t alcohol is the major cause of all fatal a nonfatal teenage traffic accidents and i implicated in thousands of drownings suicides, violent injuries, homicides and burns among adolescents. Alcohol abusing teenagers are more likely to be engaged in other "problem behaviors," to make lower grades in school, to be more involved in heavy marijuana use and to be less involved in religious activities than nonalcohol abusing youth. In addition, early use of alcohol is considered a predictor of later alcohol abuse and a "gateway behavior" for illicit drug use and other deviant behaviors.

Such startling facts led Metropolitan epidemiologists to review the most recent data on drug and alcohol use among the young, with assistance from the Office for Substance Abuse Prevention (Alcohol, Drug Abuse, and Mental Health Administration). The following report presents these data and focuses on alcohol usage (similar reports on the use of other drugs will be in forthcoming issues).

Since 1975, data on drug prevalence among United States high school seniors

## Figure A — Trends in Current Use of Cocaine and the Top Three Prevalent Drugs Mentioned by High School Seniors



Source: High School Senior Survey, National Institute of Drug Abuse, 1986.

have been gathered in annual surveys conducted for the National Institute on Drug Abuse by the Institute for Social Research, University of Michigan. The 1986 survey included data from close to 130 high schools and involved more than 15,000 seniors. In addition to these data, in 1983 and 1987, "The Weekly Reader," produced by Field Publications, conducted a national survey of elementary and high school students' attitudes and perceptions of drugs and alcohol use. These data represent the perceptions and beliefs of a sample of approximately 500,000 school children across the country. The following report is bas
selected portions of these national dat
in the interest of alerting our readers t
magnitude of the problem and the fa
alcohol continues to be the No. 1 drug
problem among America's youth.

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*These previously unpublished data from the 1986 H
School Senior Survey were supplied courtesy of Dr. 
Johnston through the Office for Substance Abuse Pr
within the Alcohol, Drug Abuse, and Mental He
Administration. "The Weekly Reader" data were tur
through the National Council on Alcoholism, Inc. Th
of Substance Abuse Prevention facilitated the acqu
of these data.

## Table 2—Alcohol Usage Patterns United States High School Seniors, 1986

| | Lifetime Use | Annual Use | Last Month | Daily in Last Month |
|---|---|---|---|---|
| **All Seniors** | **91.3** | 84.5 | 65.3 | 4.8 |
| **Sex** | | | | |
| Male | **92.3** | 85.8 | 69.0 | 6.7 |
| Female | **90.6** | 83.4 | 61.9 | 2.8 |
| **College Plans** | | | | |
| None or under 4 years | **92.2** | 85.1 | 66.6 | 6.8 |
| Complete 4 Years | **91.1** | 84.6 | 64.8 | 3.5 |
| **Region** | | | | |
| Northeast | **94.3** | 88.7 | 67.6 | 4.9 |
| Midwest | **93.5** | 88.4 | 71.3 | 4.9 |
| South | **88.0** | 78.4 | 58.2 | 4.9 |
| West | **89.7** | 82.9 | 64.5 | 4.2 |
| **Population Density** | | | | |
| Large SMSA | **92.8** | 86.8 | 66.2 | 4.0 |
| Other SMSA | **91.0** | 84.1 | 64.8 | 4.5 |
| Non-SMSA | **90.6** | 83.0 | 65.2 | 5.8 |

Source: High School Senior Survey, National Institute of Drug Abuse, 1986; extrapolations by Metropolitan Life Insurance Company Health and Safety Education personnel, 1987.

## Table 3—Trends in Alcohol Behaviors and Perceptions Among High School Seniors, United States, 1975 to 1986

| | Percent Saying 'Great Risk' If | | | | Percent Saying 'Most or All' of Best Friends | |
|---|---|---|---|---|---|---|
| | Try 1 or 2 Alcoholic Drinks | Take 1 or 2 Drinks Nearly Every Day | Take 4 or 5 Drinks Nearly Every Day | Take 5 or More Drinks Once, Twice Weekend | Drink Alcohol | Get Drunk At Least Once a Week |
| 1975 | 5.3 | 21.5 | 63.5 | 37.8 | 68.4 | 30.1 |
| 1976 | 4.8 | 21.2 | 61.0 | 37.0 | 64.7 | 26.6 |
| 1977 | 4.1 | 18.5 | 62.9 | 34.7 | 66.2 | 27.6 |
| 1978 | 3.4 | 19.6 | 63.1 | 34.5 | 68.9 | 30.2 |
| 1979 | 4.1 | 22.6 | 66.2 | 34.9 | 68.5 | 32.0 |
| 1980 | 3.8 | 20.3 | 65.7 | 35.9 | 68.9 | 30.1 |
| 1981 | 4.6 | 21.6 | 64.5 | 36.3 | 67.7 | 29.4 |
| 1982 | 3.5 | 21.6 | 65.5 | 36.0 | 69.7 | 29.9 |
| 1983 | 4.2 | 21.6 | 66.8 | 38.6 | 69.0 | 31.0 |
| 1984 | 4.6 | 23.0 | 68.4 | 41.7 | 66.6 | 29.6 |
| 1985 | 5.0 | 24.4 | 69.8 | 43.0 | 66.0 | 29.9 |
| 1986 | 4.6 | 25.1 | 66.5 | 39.1 | 68.0 | 31.8 |

Source: High School Senior Survey, National Institute of Drug Abuse, 1986; extrapolations by Metropolitan Life Insurance Company Health and Safety Education personnel, 1987

### Prevalence of Use

As seen in Table 1, alcohol was the drug most commonly used by seniors in the class of 1986. Nine out of 10 seniors had consumed alcohol during their lifetime; its use was reported 35 percent more frequently than cigarette smoking and 79 percent more often than marijuana or hashish use (the two next most prevalent drugs mentioned). About two-thirds of the seniors had consumed wine, beer or distilled spirits within the last 30 days and only one in 12 had *never* used alcohol. Lifetime use of cocaine—a drug that has received widespread media attention—was reported by approximately one in six seniors, with 6 percent acknowledging use within the last month.

Only one in 12 high school seniors has never used the drug.

Usage rates for cocaine and the top three drugs (alcohol, cigarettes and marijuana) have fluctuated somewhat between 1975 and 1986, but the percent of seniors using these drugs within the last 30 days seems to be declining (Figure A). From a public health perspective, current alcohol prevalence remains unacceptably high even with a 4 percent decrease in rate of use over the 12 years. Cigarette smoking, however, decreased almost 20 percent over the period and marijuana/hashish usage was down by 14 percent. Cocaine use increased more than three times over the 12 years but showed a 7 percent decline between 1985 and 1986. Remarkably high rates of ever (lifetime), annual, and current alcohol use were reported by seniors in all four geographic areas of the country (Table 2). The highest rates were in the Northeast and Midwest regions (94 percent each for lifetime usage), and these areas retained the highest rates across the various frequency categories. Seven out of 10 high school seniors in the Midwest drank alcohol within the last month compared with two-thirds of those in the Northeast. Seniors in the South reported the lowest rates for all but daily use, where their rates were the same as those in the Northeast and Midwest.

Similar proportions of senior girls and boys reported a history of lifetime and/or annual use of alcohol. More boys than girls used alcohol within the last month (69 vs. 62 percent), and daily use among senior boys was almost two and one-half times more prevalent than among the girls. Similar rates existed in reference to college plans with the most revealing data evident for daily use. That is, daily alcohol consumption was half as prevalent among seniors with plans to complete at least four years of college than among those with lower academic expectations.

As disturbing as those prevalence rates are, unfortunately only four out of 10 seniors indicated that they believed weekend heavy drinkers were at "great risk" of harming themselves (Table 3). This proportion represents a significant 9 percent *decrease* in such a perception between 1985 and 1986. Perceived harmfulness of various alcohol consumption patterns has remained fairly stable among seniors since 1975. Roughly two-thirds feel persons are at "great risk" if they daily drink four or five alcoholic beverages and one-quarter feel this way about one or two drinks nearly every day. Consistent with those findings, more than two-thirds of high school seniors indicate that most or all of their friends drink alcohol and close to one-third get drunk at least once a week.

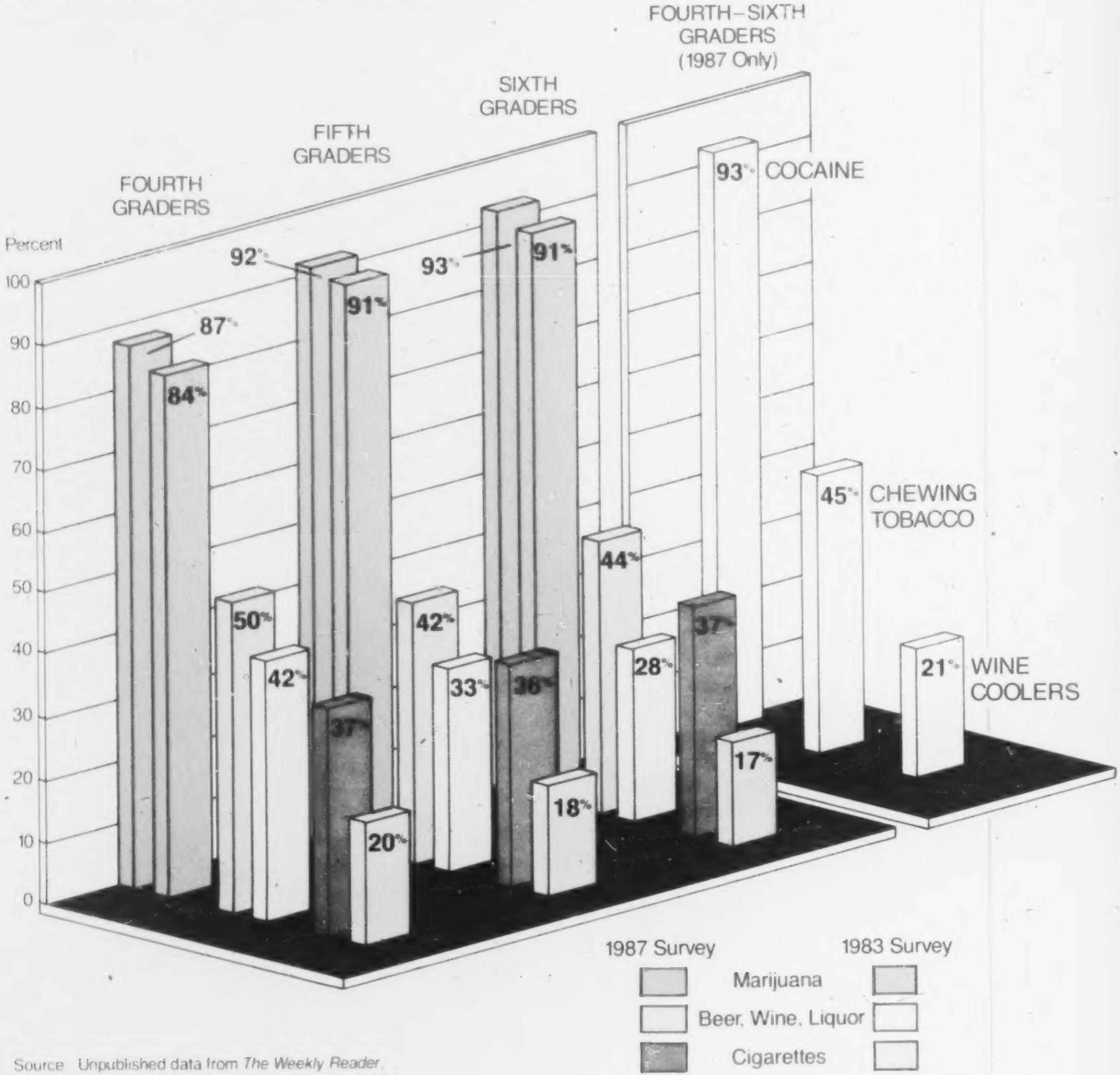
## Beliefs and Perceptions Held by Elementary School Children

Nearly nine out of 10 fourth-to-sixth graders are aware that marijuana and cocaine are drugs; less than half consider alcohol a drug, and even fewer think of cigarettes this way (Figure B). Of particular interest is the fact that only 21 percent of these students think of wine coolers as a drug. Knowledge that alcoholic beverages are drugs increased between 1983 and 1987 while peer pressure to try them remained fairly stable over the years (Figure B).

Children's perceptions about use of alcoholic beverages indicate a climate of acceptability and normative behavior that has serious implications for future problems. For instance, one-third of fourth graders, almost one-half of sixth graders and two-thirds of 7-12 graders report "some" or "a lot" of peer pressure to drink wine coolers, a product widely advertised since 1983. Even more troubling for the public's long-term health is that the proportion of elementary school children who believe that the daily use of alcohol or wine coolers by their contemporaries could cause "great harm" decreased with each succeeding grade. By the sixth grade, the proportion of children

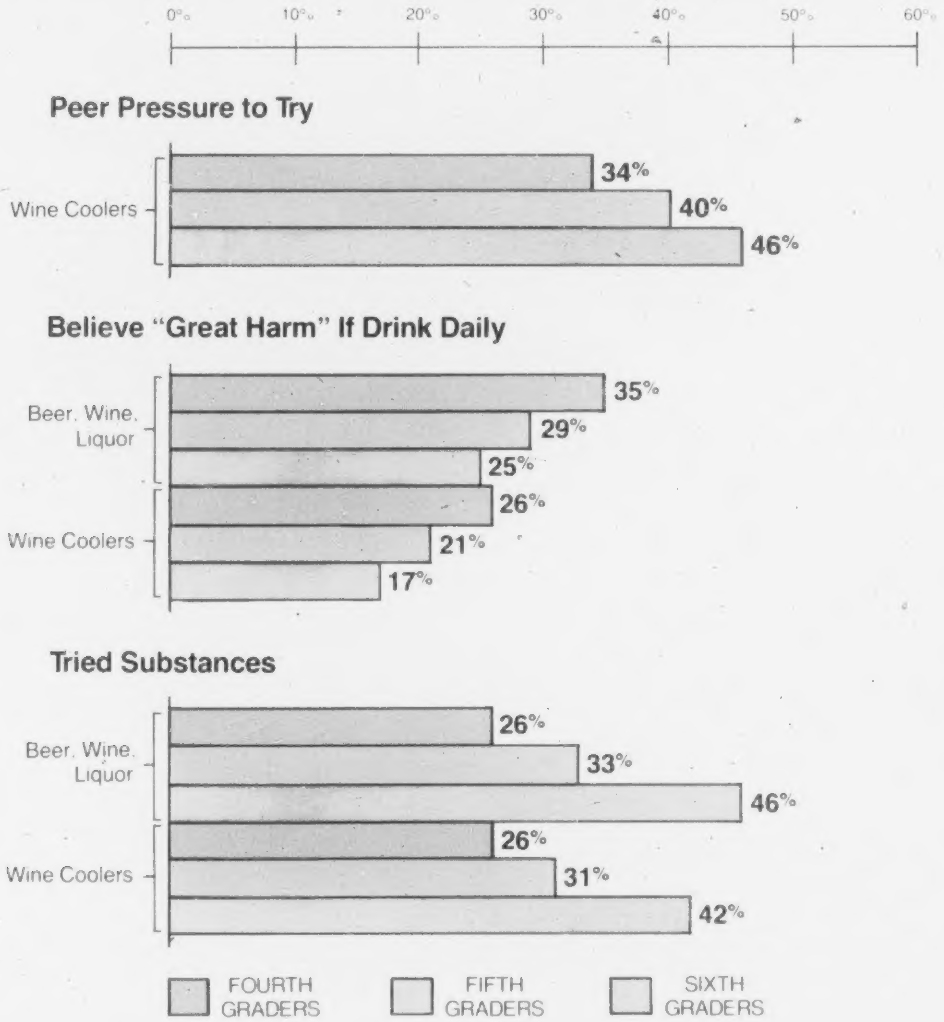
[illegible]

## Figure B—Trends in Beliefs That The Substance Is a Drug United States Children, 1983 and 1987



Source: Unpublished data from *The Weekly Reader*, National Survey on Drugs and Drinking, Spring 1987

Figure C—Fourth Through Sixth Graders' Beliefs About Alcohol and Wine Coolers, United States, 1987



Source: Unpublished data from *The Weekly Reader* "National Survey on Drugs and Drinking," Spring 1987 who thought daily use of alcohol was very harmful decreased 29 percent and those who thought this about wine coolers decreased by 35 percent.

Across the country, the proportion of children who report that fellow students have tried alcohol or wine coolers increases with each grade level (Figure C). Among fourth graders, 26 percent think their peers have tried these drinks. This proportion rises to 46 percent for alcohol and 42 percent for wine coolers by the sixth grade and continues to climb to about 80 percent among 7th-to-12th graders who believe their fellow students have tried these alcoholic beverages.

Childhood and adolescent drinking and drug abuse have become major public health problems in the United States as the analyses in this article amply attest. As a nation accountable for its children's behavior and their future, findings such as these raise exceedingly uncomfortable questions for adults. Where have we been as these chemical abuse problems emerged? Why is the use of alcohol and/or other drugs so pervasive among America's youth? Further, why has adult society in the United States permitted children and teens ready access to alcoholic beverages such as wine coolers? And, the most important question of all: What are we doing to control or reverse this problem?

The pathway to less childhood drinking must start with education. Public education campaigns and community-based preventive measures are essential to any long-term solution. To support such actions, a federal Office of Substance Abuse Prevention (OSAP) was created as part of the 1986 Anti-Drug Abuse Act. Over the next two years, OSAP will spend $20 million on demonstration programs at the community level for prevention, treatment and rehabilitation projects for high-risk youth. Another $4 million will be spent on programs to reach teens and preteens who are beginning to experiment with the three major "gateway" drugs: alcohol, tobacco and marijuana. For more information contact the Office of Substance Abuse Prevention, (301) 443-0373.

At this time, the magnitude of the problem is just starting to be apparent. These data and their analyses are intended to increase public understanding of the problem's gravity. If we are to develop effective solutions, the intensity of a national effort must equal the challenge. The time to start is now. ☐

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## References

[1] National Institute on Drug Abuse. *National Household Survey on Drug Abuse.* Rockville, Md.: National Institute on Drug Abuse, 1986.

[2] Borton, T., Johnson, L. *"The Weekly Reader" National Survey on Drugs and Drinking.* Middletown, Ct.: Field Publications, 1987.

[3] Johnston, L.D., O'Malley, P.M., Bachman, J.G. *Use of Licit and Illicit Drugs by America's High School Students 1975-1984.* DHHS Pub. No. (ADM) 85-1394. Rockville, Md.: National Institute on Drug Abuse, 1985.

[4] Bloom, M.D., Greenwald, M.A. "Alcohol and Cigarette Use Among Early Adolescents." *J. Drug Ed.* 14:195-205, 1984.

[5] Johnston, L.D., O'Malley, P.M., Bachman, J.G. *Drug Use Among American High School Students, College Students, and Other Young Adults: National Trends Through 1985.* Rockville, Md.: National Institute on Drug Abuse, 1986.

[6] Coombs, R.H., Wellisch, D.K., Fawzy, I.F. "Drinking Patterns and Problems Among Female Children and Adolescents: A Comparison of Abstainers, Past Users, and Current Users." *Am. J. Drug and Alcohol Abuse.* 11(3 & 4):315-348, 1985.

[7] National Institute on Alcohol Abuse and Alcoholism. *Towards the Development of a National Plan to Combat Alcohol Abuse and Alcoholism.* Rockville, Md.: National Institute on Alcohol Abuse and Alcoholism, 1986.

[8] National Council on Alcoholism, Inc. "Drinking Problems Among Children and Youth." Unpublished paper. New York: National Council on Alcoholism, Inc., January 1986.

[9] Braucht, G.N. "Psychosocial Research on Teenage Drinking: Past and Future." In Scarpitti, F.R., Datesman, S.K. (eds.) *Drugs and the Youth Culture.* Beverly Hills, Calif.: Sage Publications, 1980.

[10] Perry, C., Murray, D.M. "The Prevention of Adolescent Drug Abuse: Implications from Etiological, Developmental, Behavioral and Environmental Models." *J. Primary Prev.* 6(1):31-52, Fall 1985.

[11] Kandel, D.B. (ed.) *Longitudinal Research in Drug Use: Empirical Findings and Methodological Issues.* Washington, D.C.: Hemisphere-Wiley, 1982.

[12] O'Donnell, J.A. "Interpreting Progression from One Drug to Another." In Robins, L.N. (ed.) *Studying Drug Abuse.* New Brunswick, N.J.: Rutgers U. Press, 1985.

[13] DuPont, R.L. "Substance Abuse." *JAMA* 254(16):2335-2337, 1985.

[14] Roth, P., Friedman, L. "Alcohol Use Among Youth." *Educational Horizons.* Spring: 121-124, 1987.

# Commentary

## Just Say No!

Why do kids drink? To fit in with the crowd, to feel grown up, to cope, to exercise independence—the list goes on.

The statistics, compiled from data provided by the Department of Health and Human Services and the Xerox Corporation, are indeed alarming, but the consequences are even more devastating! Use of alcohol and other drugs by youth is clearly linked to juvenile delinquency, truancy, unwanted pregnancies, poor academic performance, traffic-related fatalities, homicides, suicides, and other problems. Young people jeopardize their health, social development, and future by using alcohol and other drugs.

The real question is, how can we stop such behaviors? Experts admit that there's no easy answer to preventing the use of alcohol and other drugs by youth, but they identify several "protective" factors that can help:

- We need to have clear "non-use" messages given by families, communities, peers, and the media.
- We need to start targeted prevention programs at early ages.
- We need to establish community-based teams to implement comprehensive and well-coordinated prevention strategies.
- We need to foster the development of parent groups and to educate parents and other adults about the warning signs of substance use by youth, the effects of their own alcohol use on children's behavior, and available resources for help.
- We should build social skills among youth and promote relationships with non-using peers.
- We should continue to work in every community to reduce the availability of alcohol to youth.
- And, finally, we must empower young people to ask for help when confronted with peer or societal pressures to drink, dating or social problems, seemingly insurmountable challenges, or the onset of substance use.

Fortunately, such factors have been incorporated into the new "Be Smart! Don't Start!—Just Say No!" prevention campaign, sponsored by the Office for Substance Abuse Prevention, U.S. Department of Health and Human Services. This campaign is a nationwide effort aimed at helping 8 to 12-year-olds "say no" to alcohol. Creative products were developed by the Children's Television Workshop under contract to Macro Systems, and include a music video and public service announcements featuring The Jets rock group. Materials for children, parents, and teachers are also included. The campaign is supported by more than 30 national civic, social, professional and voluntary groups.

This campaign deserves the support of us all—preteens, teens, educators, youth and parent organizations, civic and service groups, religious organizations, health care providers, political leaders, and businesses alike. It takes more than individuals and organizations to solve the alcohol and drug crisis. It will take each community, one by one, to adopt a full-scale prevention approach. Each community must help its children to "Just Say No!" to alcohol and other drugs. One drug-free community plus another drug-free community, and so on, equals a drug-free society. Be smart! Do your part! Our kids' lives depend on it. □

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*Otis R. Bowen, M.D.*
Secretary
U.S. Department of Health and Human Services

# Homicide:
# A Current Overview

In the field of demography, few causes of death produce as many diverse mortality patterns as homicide. Analyses of differentials by age, race, sex or geographic area all reveal significant variations. In general, mortality rates were three times higher for men than for women, five times larger for nonwhites than for whites, and differed by as much as 15-fold geographically. Because of this variability and its societal implications, researchers have conducted numerous studies to try to elucidate the factors precipitating the slayings.

Nearly 21,000 American deaths resulted from homicide or legal intervention in 1986. This compares with a provisional total of 19,420 cases in 1985 and a final count of 19,796 in 1984. When compared with the number of deaths for all causes, the toll from homicide and legal intervention was relatively small—just one percent. Nonetheless, it still is the 12th leading cause of death in the country. Among persons aged 15-44, however, mortality from homicide has a significant impact.

Nearly three-fourths of all homicides occur in this age grouping and, moreover, they account for almost 10 percent of the total deaths at these ages. Homicide (when combined with suicide) was estimated by the Centers for Disease Control to be ranked as the fourth leading cause of years of potential life lost before age 65 in the United States in 1985.

Men are the most frequent victims of homicide. Although their proportion has declined

## Table 1—Trend in Age-Adjusted Mortality Rates From Homicide and Legal Intervention, by Race and Sex United States, 1980 to 1984

Death Rate per 100,000

| | Total | | | White | | | All Other | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Both Sexes | Men | Women | Both Sexes | Men | Women | Both Sexes | Men | Women |
| 1984 | 8.4 | **13.0** | 3.9 | 5.5 | **8.2** | 2.9 | 24.9 | **42.2** | 9.6 |
| 1983 | 8.6 | **13.6** | 3.8 | 5.6 | **8.4** | 2.8 | 26.4 | **45.2** | 9.8 |
| 1982 | 9.7 | **15.3** | 4.2 | 6.3 | **9.5** | 3.1 | 30.0 | **52.2** | 10.5 |
| 1981 | 10.4 | **16.7** | 4.3 | 6.6 | **10.3** | 3.1 | 33.3 | **58.5** | 11.4 |
| 1980 | 10.8 | **17.4** | 4.5 | 6.9 | **10.9** | 3.2 | 35.0 | **61.3** | 12.2 |

Source: Various reports by the National Center for Health Statistics

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## Table 2—Trend in Mortality From Homicide and Legal Intervention Population Aged 15–44, by Race and Sex, United States, 1980 to 1984

| | Men | | | | Women | | | |
|---|---|---|---|---|---|---|---|---|
| Year | 15-44* | 15-24 | 25-34 | 35-44 | 15-44* | 15-24 | 25-34 | 35-44 |
| | | | | **Total Population** | | | | |
| 1984 | **19.9** | 18.1 | 23.5 | 18.2 | **5.5** | 5.8 | 5.9 | 4.7 |
| 1983 | **21.1** | 19.2 | 24.8 | 19.2 | **5.5** | 5.4 | 6.2 | 4.8 |
| 1982 | **23.6** | 21.2 | 28.3 | 21.4 | **6.0** | 6.0 | 6.4 | 5.4 |
| 1981 | **25.8** | 23.0 | 30.5 | 24.0 | **6.0** | 6.2 | 6.6 | 5.2 |
| 1980 | **27.3** | 24.5 | 32.5 | 24.9 | **6.5** | 6.6 | 7.0 | 5.7 |
| | | | | **White** | | | | |
| 1984 | **12.3** | 11.1 | 14.1 | 11.8 | **3.9** | 4.3 | 3.9 | 3.4 |
| 1983 | **12.9** | 11.5 | 14.9 | 12.4 | **3.8** | 3.7 | 4.1 | 3.5 |
| 1982 | **14.4** | 13.1 | 16.2 | 13.9 | **4.3** | 4.4 | 4.3 | 4.0 |
| 1981 | **15.7** | 14.4 | 17.6 | 15.1 | **4.1** | 4.3 | 4.3 | 3.6 |
| 1980 | **16.6** | 15.5 | 18.9 | 15.5 | **4.4** | 4.7 | 4.3 | 4.1 |
| | | | | **All Other** | | | | |
| 1984 | **64.2** | 52.7 | 78.4 | 62.8 | **14.0** | 13.1 | 16.4 | 12.4 |
| 1983 | **68.9** | 57.4 | 84.2 | 66.2 | **14.6** | 14.0 | 17.2 | 12.5 |
| 1982 | **79.0** | 63.0 | 101.2 | 74.0 | **15.1** | 13.6 | 17.9 | 13.7 |
| 1981 | **88.6** | 68.5 | 112.9 | 86.6 | **16.6** | 15.5 | 19.6 | 14.4 |
| 1980 | **94.7** | 74.5 | 120.9 | 90.6 | **18.2** | 16.6 | 22.1 | 15.7 |

* Adjusted on basis of age distribution of the United States total population, 1940.
Source: Various reports by the National Center for Health Statistics.

Although their proportion has declined somewhat in recent years, men still account for more than three-fourths of the homicide victims.

somewhat in recent years, men still account for more than three-fourths of the deceased. As may be ascertained from Table 1, the age-adjusted death rate among men—13.0 per 100,000—is over three times that for women. For both sexes combined, the age-adjusted death rate declined to 8.1 per 100,000 in 1985 from 8.4 per 100,000 in 1984 and from an all-time high of 10.8 per 100,000 in 1980. At that time a record 24,278 persons lost their lives from homicide or legal intervention.

### Nonwhite Versus White Rates

In the United States homicide plays a much more significant role in the mortality of nonwhites than of whites. In 1984 (latest data available) the age-adjusted death rate for nonwhites was roughly five times the mortality rate of whites. Analysis by sex reveals that the

# Table 3—Mortality From Homicide and Legal Intervention Among Men Aged 15–44, United States, 1979–81

Death Rate per 100,000

| | Total | | | | White | | | | All Other | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15-44* | 15-24 | 25-34 | 35-44 | 15-44* | 15-24 | 25-34 | 35-44 | 15-44* | 15-24 | 25-34 | 35-44 |
| **UNITED STATES** | **26.2** | **23.3** | **31.2** | **24.2** | **16.4** | **15.4** | **18.6** | **15.3** | **74.2** | **56.7** | **93.8** | **74.4** |
| New England | 9.6 | 8.1 | 11.7 | 9.2 | 7.4 | 6.3 | 8.6 | 7.5 | 40.8 | 30.1 | 57.1 | 36.0 |
| Maine | 3.8 | † | † | † | 3.6 | † | † | † | † | † | † | † |
| New Hampshire | 4.5 | † | † | † | 4.6 | † | † | † | † | † | † | † |
| Vermont | † | † | † | † | † | † | † | † | † | † | † | † |
| Massachusetts | 10.2 | 8.7 | 12.7 | 9.4 | 8.1 | 6.9 | 9.4 | 8.0 | 38.8 | 30.8 | 55.1 | † |
| Rhode Island | 10.9 | 9.7 | 15.2 | † | 10.8 | 9.6 | 15.2 | † | † | † | † | † |
| Connecticut | 12.7 | 10.7 | 14.4 | 13.2 | 8.2 | 7.5 | 8.1 | 9.4 | 51.5 | 35.0 | 71.7 | 49.8 |
| Middle Atlantic | 26.1 | 24.2 | 31.9 | 21.9 | 14.6 | 13.3 | 17.4 | 13.1 | 82.2 | 74.2 | 105.4 | 65.6 |
| New York | 35.2 | 33.6 | 41.5 | 30.0 | 22.1 | 20.3 | 25.9 | 20.0 | 83.4 | 80.3 | 101.1 | 66.8 |
| New Jersey | 18.1 | 15.6 | 23.7 | 14.7 | 9.7 | 8.3 | 11.9 | 9.1 | 57.6 | 47.3 | 82.3 | 42.1 |
| Pennsylvania | 17.5 | 15.7 | 22.5 | 14.0 | 7.5 | 7.2 | 9.1 | 6.2 | 105.7 | 83.9 | 143.1 | 90.8 |
| East North Central | 22.8 | 21.1 | 27.4 | 19.6 | 10.8 | 11.1 | 11.8 | 9.3 | 102.6 | 81.6 | 132.1 | 95.8 |
| Ohio | 18.1 | 16.3 | 21.1 | 17.0 | 9.5 | 9.6 | 9.4 | 9.5 | 90.7 | 66.5 | 120.6 | 87.5 |
| Indiana | 18.2 | 16.2 | 22.9 | 15.5 | 10.2 | 9.5 | 11.0 | 10.2 | 103.6 | 78.4 | 149.8 | 82.7 |
| Illinois | 34.0 | 34.7 | 40.4 | 25.7 | 17.0 | 19.2 | 18.8 | 11.9 | 105.2 | 92.7 | 132.8 | 89.4 |
| Michigan | 25.0 | 20.8 | 30.8 | 23.7 | 9.1 | 8.8 | 10.4 | 7.9 | 120.3 | 88.1 | 148.8 | 129.1 |
| Wisconsin | 6.9 | 5.7 | 8.6 | 6.4 | 4.7 | 4.0 | 5.4 | 4.8 | 42.6 | 31.1 | 59.5 | † |
| West North Central | 15.0 | 14.2 | 17.9 | 12.5 | 7.2 | 6.3 | 8.7 | 6.7 | 119.5 | 104.9 | 146.6 | 107.0 |
| Minnesota | 5.1 | 4.2 | 6.4 | 4.6 | 3.8 | 3.6 | 4.2 | 3.5 | 38.3 | † | 59.6 | † |
| Iowa | 5.9 | 5.0 | 6.3 | 6.7 | 4.8 | 4.1 | 4.7 | 5.7 | 44.8 | † | † | † |
| Missouri | 32.5 | 31.1 | 39.7 | 25.8 | 12.2 | 10.0 | 15.2 | 11.7 | 187.5 | 168.7 | 237.2 | 154.0 |
| North Dakota | † | † | † | † | † | † | † | † | † | † | † | † |
| South Dakota | 9.7 | 10.7 | † | † | † | † | † | † | 106.9 | † | † | † |
| Nebraska | 9.5 | 9.8 | 11.5 | † | 5.6 | 6.4 | 6.2 | † | 79.4 | † | 106.3 | † |
| Kansas | 16.5 | 16.3 | 19.3 | 13.5 | 11.3 | 10.1 | 14.3 | 9.3 | 67.1 | 62.9 | 69.9 | † |
| South Atlantic | 30.3 | 22.6 | 37.0 | 32.6 | 17.2 | 13.8 | 19.2 | 19.2 | 77.7 | 48.3 | 100.5 | 89.6 |
| Delaware | 13.1 | 12.7 | 14.4 | † | 8.8 | † | † | † | 34.6 | † | † | † |
| Maryland | 25.6 | 23.6 | 32.2 | 20.6 | 9.5 | 8.8 | 11.8 | 7.8 | 72.7 | 63.0 | 93.2 | 61.6 |
| District of Columbia | 74.7 | 63.6 | 89.6 | 71.9 | † | † | † | † | 103.7 | 81.5 | 130.1 | 102.0 |
| Virginia | 19.3 | 14.6 | 22.8 | 21.3 | 11.9 | 10.3 | 12.2 | 13.8 | 50.0 | 29.0 | 66.4 | 58.2 |
| West Virginia | 17.9 | 15.0 | 20.8 | 18.2 | 15.8 | 13.9 | 17.7 | 16.0 | 77.4 | † | † | † |
| North Carolina | 26.5 | 17.4 | 33.0 | 30.7 | 15.5 | 11.8 | 17.2 | 18.2 | 65.5 | 32.1 | 86.4 | 84.9 |
| South Carolina | 28.3 | 17.5 | 35.0 | 34.6 | 15.2 | 11.3 | 17.0 | 18.1 | 63.2 | 30.0 | 79.7 | 87.4 |
| Georgia | 35.6 | 24.1 | 43.7 | 41.1 | 17.8 | 12.7 | 20.5 | 21.3 | 88.7 | 49.9 | 110.1 | 114.6 |
| Florida | 40.6 | 31.6 | 48.5 | 43.0 | 26.4 | 21.3 | 29.6 | 29.4 | 109.0 | 73.1 | 142.3 | 116.9 |
| East South Central | 30.3 | 21.8 | 38.8 | 31.4 | 16.9 | 11.9 | 21.3 | 18.3 | 93.3 | 55.2 | 120.0 | 111.8 |
| Kentucky | 22.4 | 16.7 | 28.6 | 22.5 | 18.5 | 14.2 | 23.4 | 18.5 | 72.2 | 38.6 | 95.7 | 88.9 |
| Tennessee | 27.7 | 22.2 | 33.6 | 28.1 | 16.5 | 12.6 | 20.3 | 17.1 | 92.6 | 63.7 | 107.8 | 112.6 |
| Alabama | 36.2 | 23.7 | 48.8 | 37.9 | 16.2 | 10.9 | 20.4 | 18.1 | 105.3 | 55.5 | 143.0 | 126.4 |
| Mississippi | 38.1 | 25.7 | 49.3 | 41.2 | 15.9 | 7.3 | 20.8 | 21.3 | 87.6 | 54.2 | 113.2 | 101.4 |
| West South Central | 41.0 | 35.4 | 49.2 | 38.6 | 29.7 | 27.6 | 34.4 | 26.8 | 84.7 | 59.0 | 105.7 | 93.6 |
| Arkansas | 25.4 | 20.5 | 33.7 | 22.1 | 13.9 | 11.0 | 17.2 | 14.0 | 90.2 | 58.7 | 127.5 | 87.9 |
| Louisiana | 45.3 | 37.8 | 55.4 | 43.3 | 17.5 | 16.6 | 19.6 | 16.3 | 119.2 | 81.7 | 153.1 | 128.6 |
| Oklahoma | 25.0 | 18.5 | 31.3 | 26.3 | 18.9 | 13.5 | 23.2 | 21.1 | 62.4 | 41.6 | 81.8 | 66.9 |
| Texas | 45.2 | 40.3 | 53.1 | 42.3 | 37.6 | 36.3 | 43.1 | 32.9 | 74.5 | 52.7 | 90.2 | 84.9 |
| Mountain | 18.4 | 16.7 | 20.1 | 18.6 | 16.7 | 15.3 | 18.2 | 16.9 | 29.6 | 24.2 | 32.9 | 32.7 |
| Montana | 12.4 | 11.0 | 13.8 | † | 9.0 | † | † | † | 65.6 | † | † | † |
| Idaho | 10.1 | 9.1 | 10.1 | † | 10.5 | 9.4 | 10.7 | † | † | † | † | † |
| Wyoming | 14.0 | † | 18.4 | † | 12.8 | † | 15.6 | † | † | † | † | † |
| Colorado | 13.6 | 12.6 | 15.5 | 12.8 | 12.5 | 12.1 | 13.2 | 12.3 | 22.4 | † | 34.4 | † |
| New Mexico | 36.7 | 31.1 | 42.2 | 37.5 | 40.8 | 35.9 | 47.2 | 39.8 | 25.0 | 19.5 | 27.7 | † |
| Arizona | 21.9 | 21.9 | 21.6 | 22.4 | 20.1 | 20.0 | 20.9 | 19.2 | 30.8 | 28.9 | 24.6 | 40.0 |
| Utah | 8.3 | 8.5 | 8.4 | † | 8.0 | 7.7 | 8.7 | † | † | † | † | † |
| Nevada | 30.6 | 25.3 | 37.5 | 29.4 | 25.2 | 20.5 | 30.7 | 24.8 | 66.8 | † | 83.7 | † |
| Pacific | 28.4 | 30.4 | 30.8 | 22.9 | 25.1 | 28.5 | 26.1 | 19.4 | 39.7 | 36.0 | 46.7 | 36.4 |
| Washington | 11.4 | 9.2 | 13.4 | 12.0 | 9.2 | 8.3 | 10.1 | 9.5 | 33.4 | 16.0 | 45.4 | 42.2 |
| Oregon | 10.1 | 10.3 | 10.9 | 8.9 | 9.2 | 9.6 | 9.9 | 7.8 | 24.8 | † | † | † |
| California | 34.1 | 37.1 | 37.1 | 26.6 | 31.1 | 36.0 | 32.4 | 23.1 | 43.4 | 40.1 | 50.9 | 38.8 |
| Alaska | 19.6 | 19.7 | 22.8 | † | 13.7 | † | † | † | 41.7 | † | † | † |
| Hawaii | 13.6 | 12.4 | 10.9 | 18.3 | 16.2 | † | † | † | 12.0 | 12.0 | † | † |

* Adjusted on basis of age distribution of the United States total population, 1940.

†Fewer than 20 deaths; rate not shown.

Source: Computed by the Health and Safety Education Division of the Metropolitan Life Insurance Company, based on data from the Division of Vital Statistics, National Center for Health Statistics.

# Table 4—Mortality From Homicide and Legal Intervention Among Women Aged 15–44, United States, 1979–81

| | Death Rate per 100,000 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | | | | White | | | | All Other | | | |
| | 15-44* | 15-24 | 25-34 | 35-44 | 15-44* | 15-24 | 25-34 | 35-44 | 15-44* | 15-24 | 25-34 | 35-44 |
| **UNITED STATES** | **6.2** | **6.3** | **6.7** | **5.4** | **4.3** | **4.6** | **4.4** | **3.9** | **14.6** | **13.4** | **17.3** | **13.1** |
| New England | 2.9 | 3.9 | 2.5 | 2.1 | 2.4 | 3.2 | 1.8 | 1.9 | 9.7 | 11.6 | 12.2 | 4.2 |
| Maine | 3.9 | † | † | † | 3.6 | † | † | † | † | † | † | † |
| New Hampshire | † | † | † | † | † | † | † | † | † | † | † | † |
| Vermont | † | † | † | † | † | † | † | † | † | † | † | † |
| Massachusetts | 2.6 | 3.8 | 2.3 | † | 2.2 | 3.3 | 1.6 | † | 8.7 | † | † | † |
| Rhode Island | 3.9 | † | † | † | 3.4 | † | † | † | † | † | † | † |
| Connecticut | 3.2 | 3.7 | 2.9 | † | 2.2 | † | † | † | 10.3 | † | † | † |
| Middle Atlantic | 4.8 | 5.3 | 5.4 | 3.6 | 3.1 | 3.6 | 3.3 | 2.3 | 12.3 | 12.4 | 14.6 | 9.3 |
| New York | 5.6 | 6.4 | 6.2 | 4.0 | 3.9 | 4.7 | 4.2 | 2.4 | 11.3 | 11.6 | 12.9 | 8.9 |
| New Jersey | 4.4 | 4.9 | 4.5 | 3.7 | 2.8 | 3.3 | 2.5 | 2.5 | 11.0 | 11.2 | 12.5 | 8.9 |
| Pennsylvania | 3.9 | 3.9 | 4.8 | 3.0 | 2.3 | 2.2 | 2.6 | 2.0 | 16.8 | 16.2 | 22.4 | 11.2 |
| East North Central | 5.6 | 5.9 | 6.2 | 4.6 | 3.3 | 3.9 | 3.2 | 2.8 | 19.4 | 17.7 | 23.5 | 16.9 |
| Ohio | 4.9 | 5.0 | 5.2 | 4.4 | 3.4 | 3.6 | 3.6 | 3.0 | 16.0 | 14.8 | 17.3 | 16.1 |
| Indiana | 4.4 | 4.8 | 5.0 | 3.1 | 3.1 | 3.4 | 3.3 | 2.4 | 16.4 | 17.2 | 20.8 | † |
| Illinois | 6.7 | 7.3 | 6.6 | 6.0 | 3.6 | 4.5 | 3.0 | 3.2 | 18.2 | 17.1 | 20.2 | 17.4 |
| Michigan | 7.1 | 6.9 | 8.8 | 5.3 | 3.7 | 4.2 | 3.6 | 3.0 | 25.3 | 21.5 | 34.9 | 19.1 |
| Wisconsin | 3.2 | 4.0 | 3.3 | † | 2.2 | 3.1 | 2.1 | † | 18.2 | † | † | † |
| West North Central | 3.8 | 4.6 | 3.9 | 2.8 | 2.6 | 3.1 | 2.6 | 2.1 | 18.9 | 22.5 | 20.5 | 12.5 |
| Minnesota | 2.1 | 2.8 | † | † | 1.8 | 2.4 | † | † | † | † | † | † |
| Iowa | 2.2 | 3.5 | † | † | 2.1 | 3.3 | † | † | † | † | † | † |
| Missouri | 6.6 | 8.3 | 6.3 | 4.7 | 4.0 | 4.5 | 3.8 | 3.5 | 23.9 | 32.2 | 23.4 | † |
| North Dakota | † | † | † | † | † | † | † | † | † | † | † | † |
| South Dakota | † | † | † | † | † | † | † | † | † | † | † | † |
| Nebraska | 2.7 | † | † | † | 2.2 | † | † | † | † | † | † | † |
| Kansas | 4.6 | 4.1 | 6.1 | † | 3.6 | 3.9 | 4.2 | † | 15.4 | † | † | † |
| South Atlantic | 8.0 | 7.6 | 8.8 | 7.7 | 5.2 | 5.1 | 5.3 | 5.3 | 16.8 | 14.1 | 19.9 | 16.7 |
| Delaware | 6.5 | † | † | † | 5.8 | † | † | † | † | † | † | † |
| Maryland | 6.0 | 6.9 | 6.2 | 4.6 | 3.4 | 3.9 | 3.3 | † | 12.7 | 14.1 | 13.4 | 10.0 |
| District of Columbia | 14.1 | 12.0 | 12.9 | 18.1 | † | † | † | † | 18.0 | 14.5 | 17.0 | 23.6 |
| Virginia | 6.1 | 5.5 | 7.5 | 5.4 | 4.7 | 4.3 | 5.6 | 4.2 | 11.5 | 9.3 | 14.7 | 10.7 |
| West Virginia | 4.8 | 3.8 | 5.0 | † | 4.0 | † | 4.5 | † | † | † | † | † |
| North Carolina | 6.5 | 5.5 | 7.4 | 6.9 | 4.2 | 4.0 | 4.4 | 4.3 | 13.7 | 9.0 | 16.4 | 16.6 |
| South Carolina | 7.1 | 6.5 | 7.4 | 7.5 | 4.8 | 5.1 | 4.1 | 5.1 | 12.3 | 8.9 | 14.7 | 13.9 |
| Georgia | 10.1 | 8.4 | 11.9 | 10.3 | 5.2 | 4.3 | 5.8 | 5.7 | 22.5 | 17.0 | 27.0 | 24.4 |
| Florida | 10.7 | 11.2 | 10.9 | 9.7 | 7.5 | 8.1 | 6.7 | 7.8 | 24.0 | 22.8 | 29.4 | 19.4 |
| East South Central | 7.3 | 6.1 | 8.4 | 7.7 | 4.8 | 4.2 | 5.2 | 5.2 | 17.7 | 12.2 | 21.7 | 20.1 |
| Kentucky | 5.6 | 5.3 | 7.3 | 3.9 | 4.9 | 5.0 | 6.0 | 3.5 | 13.6 | † | † | † |
| Tennessee | 7.0 | 5.6 | 7.9 | 7.8 | 4.9 | 3.8 | 5.0 | 6.2 | 17.4 | 12.8 | 22.3 | 17.5 |
| Alabama | 8.8 | 7.3 | 9.1 | 10.3 | 5.2 | 4.4 | 5.1 | 6.3 | 19.2 | 13.6 | 20.4 | 25.0 |
| Mississippi | 8.4 | 6.5 | 10.1 | 8.9 | 3.6 | † | † | † | 17.5 | 11.3 | 22.2 | 20.2 |
| West South Central | 8.6 | 8.6 | 9.1 | 8.0 | 6.4 | 6.7 | 6.4 | 6.1 | 16.4 | 14.5 | 18.8 | 16.1 |
| Arkansas | 7.4 | 7.3 | 7.0 | 7.9 | 5.3 | 4.8 | 5.1 | 6.1 | 17.5 | 16.9 | † | † |
| Louisiana | 9.2 | 8.8 | 10.3 | 8.6 | 4.5 | 4.2 | 4.3 | 5.0 | 19.7 | 17.6 | 23.8 | 17.8 |
| Oklahoma | 7.3 | 7.2 | 9.1 | 5.4 | 6.3 | 6.7 | 7.3 | 4.6 | 13.5 | † | 20.1 | † |
| Texas | 8.9 | 9.0 | 9.1 | 8.4 | 7.1 | 7.6 | 6.9 | 6.7 | 15.2 | 13.5 | 16.9 | 15.6 |
| Mountain | 6.2 | 5.7 | 6.7 | 6.1 | 5.6 | 5.1 | 6.2 | 5.7 | 9.3 | 9.1 | 9.6 | 9.3 |
| Montana | 5.4 | † | † | † | 4.4 | † | † | † | † | † | † | † |
| Idaho | 3.5 | † | † | † | 3.5 | † | † | † | † | † | † | † |
| Wyoming | † | † | † | † | † | † | † | † | † | † | † | † |
| Colorado | 5.8 | 5.5 | 5.8 | 6.2 | 5.0 | 4.8 | 5.1 | 5.1 | 12.5 | † | † | † |
| New Mexico | 8.0 | 7.3 | 9.8 | † | 9.3 | 8.2 | 12.0 | † | † | † | † | † |
| Arizona | 6.7 | 5.2 | 7.1 | 8.2 | 6.6 | 4.8 | 7.2 | 8.1 | 7.3 | † | † | † |
| Utah | 2.7 | † | † | † | 2.5 | † | † | † | † | † | † | † |
| Nevada | 13.5 | 16.6 | 14.9 | † | 12.1 | 15.2 | 11.9 | † | † | † | † | † |
| Pacific | 6.6 | 7.2 | 7.0 | 5.3 | 5.8 | 6.5 | 5.8 | 4.8 | 9.2 | 9.3 | 11.0 | 7.2 |
| Washington | 4.6 | 4.8 | 5.7 | 3.2 | 4.0 | 4.1 | 4.6 | 3.0 | 11.7 | † | † | † |
| Oregon | 3.9 | 4.0 | 4.3 | † | 3.6 | 3.9 | 3.8 | † | † | † | † | † |
| California | 7.2 | 8.0 | 7.6 | 5.7 | 6.5 | 7.5 | 6.5 | 5.3 | 9.2 | 9.4 | 11.1 | 6.9 |
| Alaska | 11.0 | † | † | † | † | † | † | † | † | † | † | † |
| Hawaii | 5.1 | † | † | † | † | † | † | † | 5.4 | † | † | † |

* Adjusted on basis of age distribution of the United States total population, 1940

† Fewer than 20 deaths; rate not shown.

Source: Computed by the Health and Safety Education Division of the Metropolitan Life Insurance Company, based on data from the Division of Vital Statistics, National Center for Health Statistics

[illegible]

nonwhite to white ratio of death rates was 5 to 1 among men and about 3½ to 1 among women It is noteworthy that during the past few years the mortality disparities have narrowed somewhat

There has been a significant reduction homicide rates among persons aged 15 44 The improvement has been especially significant for men for example between 1980 and 1984 the age adjusted death rate declined by about 26 percent for whites and 32 percent for men of all other races Among nonwhite women the relative decline was slightly less than that for nonwhite men whereas the decrease for white women was only half as large as for white men The recent trend in age specific mortality rates from homicide and legal intervention is presented by race and sex for the population aged 15 44 in Table 2 As may be seen among the three age groupings analyzed the death rates at ages 25 34 tend to be somewhat higher than the rates for the younger or older age categories The disparity is not as marked among white men as it is among men of all other races The right hand side of the Table contains the analysis showing that the variations in age specific death rates among women are not nearly as pronounced

[illegible]

## Method Used

Not surprisingly firearms are by far the most frequent means used to commit homicide Virtually three-fifths of all fatalities from homicide and legal intervention were caused by shootings The next most common cause of mortality was by cutting and piercing instruments—they accounted for one fifth of the homicides Men were more likely to die from firearms than women – the proportions were three fifths for men and less than one half for women Analysis shows that for both men and women there were no significant differences by race in the proportion of homicides due to firearms

## Marked Geographic Variations

The marked national differences in mortality rates from homicide and legal intervention between men and women are also present when analyzed geographically The results of a study prepared by Metropolitan Life statisticians based on the 1980 Census of Population and deaths among persons aged 15 44 that occurred during the three year period 1979 1981 are presented in Tables 3 and 4 * In this article the deaths are those assigned to the International Classification of Diseases Ninth Revision Codes E960 E978 The mortality rates are shown for three separate 10 year age groupings from ages 15 24 to ages 35 44 The death rates for ages 15 44 combined have been adjusted to take into account the differences in the age composition of state populations

Among men aged 15 44 the age adjusted mortality rate from homicide and legal intervention in the United States during 1979 81 was 26 2 per 100,000 A glance at Table 3 reveals significant geographic disparities The death rate was 9 6 per 100,000 in the New England states but was more than four times as large—41 0 per 100,000—in the West South Central states Death rates slightly

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*This is the [illegible] study in the current series of regional studies of causes of death which began in the [illegible] 1985 issue

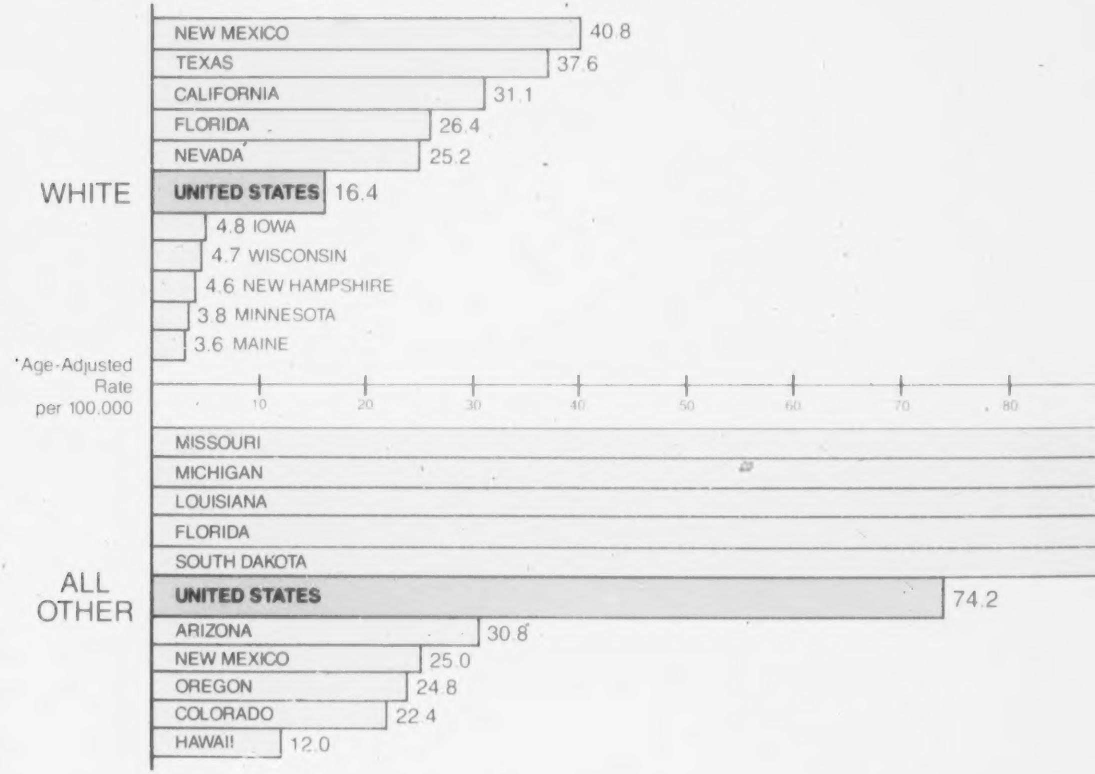
The death rate was [illegible] per 100,000 in the New England states, between [illegible] and [illegible] per 100,000 [illegible] in the West South Central states.

higher than the national average occurred in the South Atlantic, East South Central and Pacific divisions of the country. On the other hand, the age-adjusted mortality rates in the West North Central and Mountain states were significantly below the United States figure.

## Comparisons Among States

Mortality variations among individual states are also extremely pronounced. In eight states the death rates from homicide and

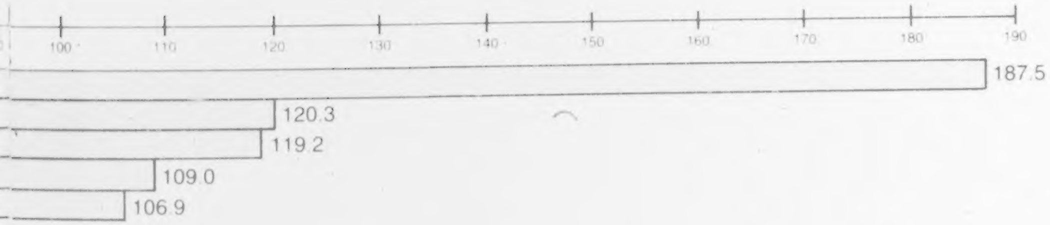
**Figure A—States With Highest and Lowest Mortality From Homicide Among Men Aged 15–44, by Race, United States, 1979–81**



legal intervention were less than 10.0 per 100,000. The lowest value was recorded in Maine, closely followed by that in New Hampshire. By contrast, relatively large death rates—above 40.0 per 100,000—were experienced in Louisiana, Texas and Florida. However, the age-adjusted death rate in these states did not even approach the magnitude of the value in the District of Columbia—namely, 74.7 per 100,000.

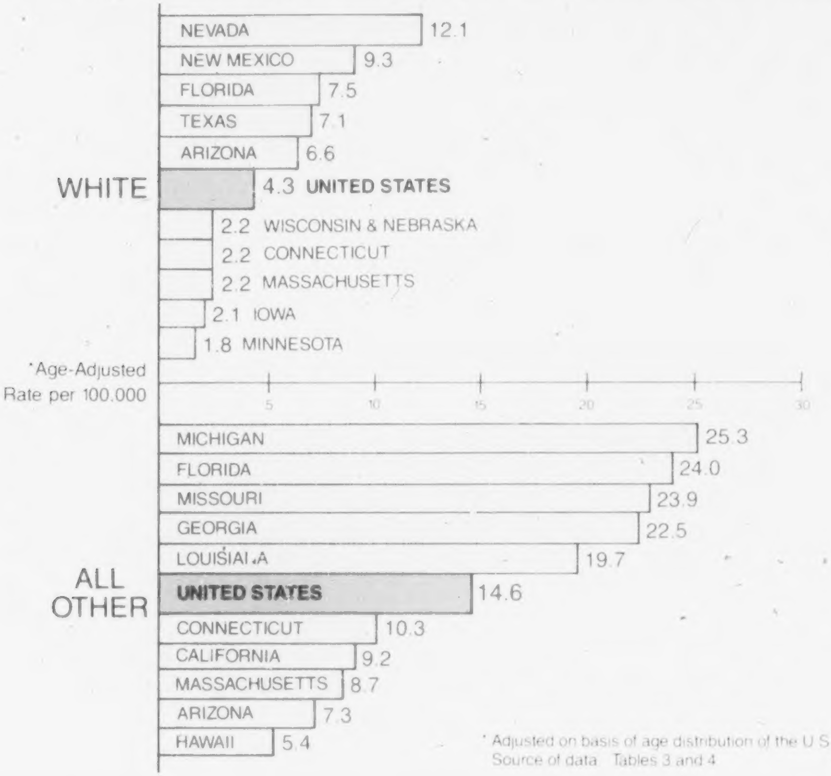
Among women aged 15-44 there were also notable geographic differences in homicide rates, although the range of the variations was not as wide as it was among men. As was the case among men, the age-adjusted death rates among women were lowest in the New England division of the country and highest in the West South Central states. Similarly, the highest age-adjusted mortality rate for women was recorded in the

A comparison of the geographic mortality differences by race for both men and women reveals substantial disparities.



* Adjusted on basis of age distribution of the U.S. total population, 1940
Source of data: Tables 3 and 4

Figure B—States With Highest and Lowest Mortality From Homicide Among Women Aged 15–44, by Race, United States, 1979–81



* Adjusted on basis of age distribution of the U.S. total population, 1940
Source of data: Tables 3 and 4

District of Columbia. In Nevada the death rate was almost as large, while in three other states—namely, Alaska, Florida and Georgia—death rates above 10.0 per 100,000 were recorded. Compared with the United States average mortality rate of 6.2 per 100,000, the age-adjusted death rate was lowest in Minnesota (2.1 per 100,000). In four other states the mortality rates were less than 3.0 per 100,000.

A comparison of the geographic mortality differences by race for both men and women reveals substantial disparities. For example, in the area of the country with the lowest homicide rate (New England), the age-adjusted mortality rate for white men was 7.4 per 100,000, while that for men of all other races was 40.8 per 100,000—over 5 times as large. Even more dramatic was the rate discrepancy in the West North Central states. Men residing in this area of the country recorded the second lowest mortality rate from homicide, but the death rate for nonwhites was more than 16½ times the rate for whites—119.5 per 100,000 versus 7.2 per 100,000, respectively. It is interesting to note that in the Pacific and Mountain divisions of the country the mortality rate differences between whites and nonwhites were comparatively small—a ratio of less than 2 to 1. The mortality pattern by race among women was essentially similar to that of men. Figures A and B present the states with the highest and lowest age-adjusted mortality rates from homicide and legal intervention by race and sex.

## A Timeless Social Problem

Homicide is primarily a social problem. As a cause of death, it becomes part of public health's responsibility to collect the data of vital statistics, but the effective control of homicide is simply too complex for any single social agency to manage. The main causes have been attributed to environmental, societal, physical and psychological reasons, and the interrelations between these factors usually produce the end result. The history of homicide dates back to the earliest recording of human events, and some of the first efforts to deal with the tragedy still dominate current thinking. The code of Hammurabi, in which the underlying principle is "an eye for an eye, a tooth for a tooth," is the foundation of many existing laws that attempt to control the problem. Throughout history this basic principle was seen as extremely limited and through the efforts of many researchers modifications evolved.

A recent study of international homicide did away with many of the commonly held, preconceived notions as to why killings occur. Archer and Gartner, for instance, found that the death penalty does not deter murderers, that crowding does not necessarily cause violence, that violence does increase in a nation that has just been involved in a war, and that within the same nation large cities do have higher homicide rates than small cities. The researchers came to the conclusion that only international studies can provide answers to the many perplexing questions about the origins of human violence.

## References

Wolfgang, M.E. *Patterns in Criminal Homicide.* Philadelphia: University of Pennsylvania Press, 1958.

Mulvihill, D.J., Tumin, M.M., Curtis, L.A. "Crimes of Violence" Vol. 11. A Staff Report Submitted to the National Commission on the Causes & Prevention of Violence. Washington, D.C.: U.S. Gov't. Printing Office, 1969.

Trivers, R.L. "Parental investment and sexual selection." In *Sexual Selection and the Descent of Man, 1871-1971.* B. Campbell (ed.). Chicago: Aldine, 1972.

Felson, R.B. "Aggression as impression management." *Social Psychology* 41:205-213, 1978.

Wilson, M., Daly, M. "Competitiveness, risk taking and violence: The young male syndrome." *Ethology and Sociobiology* 6:59-73, 1985.

*Morbidity and Mortality Weekly Report* 36(15):235, 1987.

Archer, D., Gartner, R. *Violence and Crime in Cross-National Perspective.* New Haven: Yale University Press, 1984.

# Capsule Briefs

are timely literature selections
with broad reader interest

## Focus on Children

### Will AIDS Become an Adolescent Disease?

With the world focused so extensively on adults and infants, sexually active 13-19-year-olds may have been forgotten in the "Age of AIDS." Sexual activity by age 19 among urban teenagers (e.g., 60 percent among white girls, 80 percent among black girls) presents a high-risk situation. Most teens do not use condoms. (Hein, K., **New York State Journal of Medicine**, 1987, 87(5):290-295.) As someone recently said, "Teenage sexual activity in the Age of AIDS is like watching an accident about to happen." ••• There were 307 children under 13 years (end of 1985) who were AIDS victims. Most (80 percent) acquired it perinatally, and almost all others through treatment with blood products. (Rogers, M.F., *et al*, **Pediatrics**, 1987, 79(6):1008-1014.) Sadly, the number of childhood cases is increasing rapidly. In 1987 over 70 percent have been in black and Hispanic babies. As a result, in the perinatal period black babies statistically have the same chance of having AIDS as an adult white male, according to the Centers for Disease Control, Atlanta. ••• What is it that teenagers *know, believe, think*, and *do about AIDS?* Though in this survey 70 percent of teens reported they were sexually active, only a tiny fraction had changed their behavior *and* adopted effective preventive measures. Their lack of knowledge about transmission of AIDS seemed their greatest source of vulnerability. (Strunin, L. and Hingson, R., **Pediatrics**, 1987, 79(5):825-828.) ••• Stepping in to fill that knowledge gap is an excellent and innovative pamphlet called **Teens and AIDS: Playing It Safe**. It was developed jointly by the American Council of Life Insurance and the Health Insurance Association of America in 1987 with diverse consultation nationally. Write to Education Relations and Resources at either organization for a copy.

### Expert Medical Committees Make Recommendations About Child Health

Several recent committee reports from the American Academy of Pediatrics have considerable significance for public health in nearly all communities. These reports were expert committee advisories to pediatricians about critical community health issues. Community leaders may not always be aware that pediatricians often represent an important resource for advice on public health problems of childhood. For additional information on what experts tell pediatricians about such issues, you may want to read the original reports (published in **Pediatrics**, Vol. 79, 1987): *Asbestos Exposure in Schools* (pp. 301-305); *Tobacco Use by Children and Adolescents* (pp. 479-481); *Qualification and Utilization of Nursing Personnel Delivering Health Services in Schools* (pp. 647-648); *Role of the Pediatrician in Management of Sexually Transmitted Diseases in Children and Adolescents* (pp. 454-456); *Alcohol Use and Abuse: a Pediatric Concern* (pp. 450-453).

## Childhood Intelligence

We are learning gradually how competent infants are, as our measurements get more sophisticated. For instance, two child developmental psychologists have shown that tests of intelligence quotients (IQ) can be used in the first 6 months of life that correlate well with tests at ages 4-6 years. So, parents, you also should be alert. Much learning is occurring in that cooing, cuddly little infant. (Kolata, G., **Science**, 1987, 236:774-5.) • • • Though constitutional factors in IQ are well established, like Yogi Berra's baseball game, IQ may not be determined until childhood is over. That conclusion emerges from this study of social environmental risk factors on 215 four-year-olds in Rochester, N.Y. Those children from "high-risk" families ("risk" defined using mental health status, anxiety measures, interaction measures, life events and selected demographics) had statistically significantly lower IQs. (Sameroff, A.J., *et al.* **Pediatrics**, 1987, 79(3):343-350.) • • • Physical environmental factors also can depress IQ, as this study of blood lead levels in 855 Edinburgh, Scotland, boys and girls aged 6-9 years, demonstrated. A complex statistical analysis that controlled for the usual confounders in IQ measurement, determined that there was a "significant negative relationship between ... blood lead" and ability and educational attainment of these children. Does your community know the blood lead levels of its school children? (Fulton, M., *et al.* **The Lancet**, 1987, 1:1221-1226.) • • • When phenylketonuria (PKU) testing and dietary treatment from infancy became available about 25 years ago, it was a Godsend for parents of afflicted babies. Otherwise, they were condemned to lives of mental subnormalcy. This study was a report of a 22-year follow-up of 91 children from a cohort diagnosed, then treated as PKUs from infancy. Some had their diet discontinued after age five, others continued it longer. For some children with higher blood levels of phenylalanine (over 18 mg/dL), dietary continuation may yield higher mid-childhood IQ levels. (Waisbren, S.E., *et al.* **Pediatrics**, 1987, 79(3):351.) • • • Why don't girls usually perform as well as boys on math and science achievement tests? Some posit genetic factors that favor boys in these subjects. Others label the blame as psychosocial: so-called "math anxiety." Recent evidence seems to indicate that girls *can* and *are* doing better than before on math and science tests, but that they still haven't caught up with boys, especially at the highest performance levels. (Holden, C., **Science**, 1987, 236:660-661.)

# Regional Variation in Costs of Cataract Surgeries

Cataracts, clouded or opaque lenses, are a major cause of blindness in the United States The condition is progressive, varies in degree of visual impairment and frequently occurs in both eyes Cataracts can be caused by a variety of conditions but are usually associated with aging, and most people over age 70 experience some degree of cataract formation Fortunately, however, cataract surgery (extraction of the diseased lens) is one of the safest, most common and efficacious operations being performed today

Over the past two decades many advances in cataract management have taken place Lens extraction has been facilitated by the introduction of the operating microscope, improved instruments and suture materials, the development of better techniques, and the growing acceptance of the implantation of refined, high quality intraocular lenses As the technology has grown, so has the number of cataract extractions, particularly among the elderly. Cataract surgery is now the most common major surgical procedure covered by Medicare Government experts estimate that more than 2 million cataract extractions will be performed in 1989

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cataract extractions will
be performed in 1989

With advances in surgical technology, increased demands for lens extractions among all ages, and a heightened awareness of and emphasis on medical/surgical cost

containment programs, cataract surge
are increasingly being performed on a
patient basis Through 1983 in-hospi
cataract extractions increased, consist
ranking this procedure among the to
surgeries in U.S. hospitals (Figure A) B
1983 and 1985, however the number o
hospital cataract operations decrease
percent from 600,000 to 186,000 Now

[illegible]

than three-fourths of all Medicare catar
operations are performed in clinics or do
offices Whether or not out-patient catar
surgery is indeed resulting in reduced m
expenses is a controversial subject and
that continues to be investigated Som
evidence suggests that waste and abu
surround out-patient procedures and tha
cataract operations can cost more than t
that for an in-hospital extraction The ou
patient and hospital reimbursement syst
is being investigated and various legisla
reform measures are being proposed a
implemented—all toward the goal that
rehabilitation be performed in as equita
a manner as possible

The following study addresses the iss
variation in costs for an in-hospital catar
operation in the United States It presents
analysis of 213 cataract operations perfo
on persons under 65 years of age in U.S.
between March 1, 1985, and February
1986 The data are from claims made
employees and dependents of compa
insured under group health contracts

Metropolitan Life Insurance Company. The average charges represent billed amounts for hospital and physician (surgical and medical) fees for CPT-4* codes 66830, 66840, 66915, 66920-66940, 66983, 66984.

The study group included 103 men and 110 women, each averaging 57 years of age.

Presentation of claims charges is for these men and women, combined, and is restricted to those 12 states within the continental United States in which at least five in-hospital cataract procedures were performed; these data represent 75 percent of the reported cases. As seen in Table 1, the distribution of cataract surgeries varied considerably by region of the country. The Middle Atlantic states accounted for one-fourth of all the cataract

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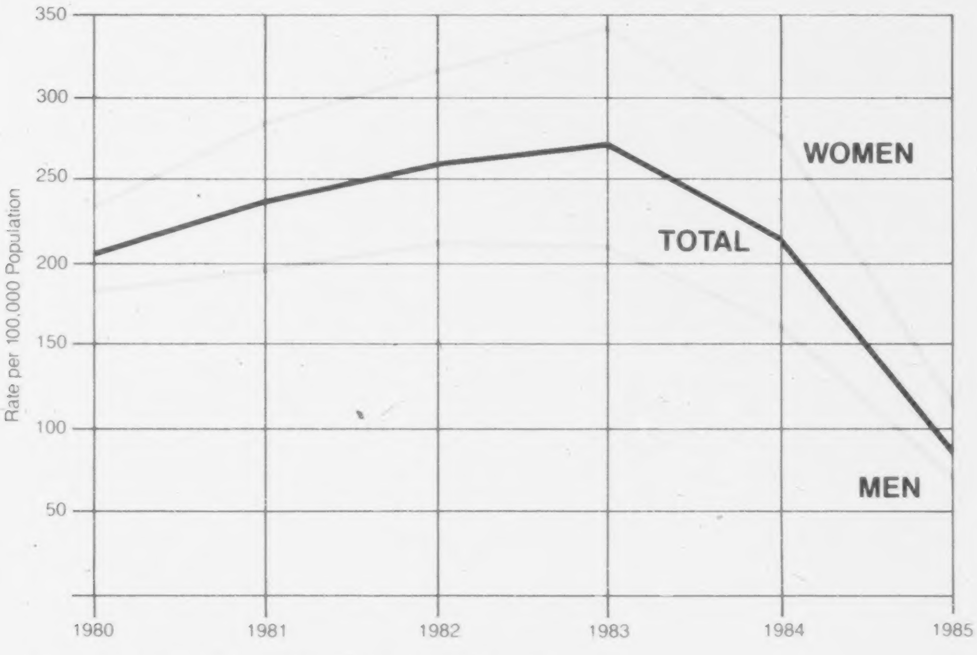
*CPT-4 — Physician's Current Procedural Terminology, Fourth Edition

## Figure A—Rates of In-Hospital Cataract Extractions by Sex, United States, 1980 to 1985



Source: Published and unpublished data from Vital and Health Statistics, National Center for Health Statistics, Hospital Discharge Surveys, 1980 through 1985.

# Table 1—Regional Distribution of In-Hospital Cataract Procedures* March 1, 1985–February 28, 1986

| Geographic Area* | Number | Percent | Total Costs |
|---|---|---|---|
| United States | 213 | 100.0 | $5,410 |
| New England | 8 | 3.7 | 4,840 |
| Connecticut | 2 | .9 | 4,630 |
| Massachusetts | 4 | 1.9 | 5,020 |
| New Hampshire | 1 | .5 | 6,020 |
| Vermont | 1 | .5 | 3,340 |
| Middle Atlantic | 53 | 24.9 | 6,200 |
| New Jersey | 6 | 2.8 | 4,870 |
| New York | 37 | 17.4 | 6,160 |
| Pennsylvania | 10 | 4.7 | 7,110 |
| East North Central | 48 | 22.5 | 5,320 |
| Illinois | 23 | 10.8 | 5,180 |
| Indiana | 4 | 1.9 | 5,900 |
| Michigan | 1 | .5 | 2,720 |
| Ohio | 18 | 8.4 | 5,370 |
| Wisconsin | 2 | .9 | 6,610 |
| West North Central | 17 | 8.0 | 4,590 |
| Iowa | 2 | .9 | 3,860 |
| Kansas | 2 | .9 | 5,140 |
| Missouri | 11 | 5.2 | 4,580 |
| Nebraska | 2 | .9 | 4,820 |
| South Atlantic | 23 | 10.8 | 5,060 |
| Florida | 4 | 1.9 | 5,140 |
| Georgia | 3 | 1.4 | 4,370 |
| Maryland | 3 | 1.4 | 5,300 |
| North Carolina | 4 | 1.9 | 5,350 |
| South Carolina | 2 | .9 | 4,270 |
| Virginia | 5 | 2.4 | 5,510 |
| West Virginia | 2 | .9 | 4,680 |
| East South Central | 23 | 10.8 | 4,450 |
| Alabama | 2 | .9 | 4,480 |
| Kentucky | 11 | 5.2 | 5,200 |
| Mississippi | 2 | .9 | 3,170 |
| Tennessee | 8 | 3.8 | 3,750 |
| West South Central | 24 | 11.3 | 5,370 |
| Arkansas | 4 | 1.9 | 4,150 |
| Louisiana | 5 | 2.4 | 5,820 |
| Texas | 15 | 7.0 | 5,540 |
| Mountain | 7 | 3.3 | 5,290 |
| Arizona | 1 | .5 | 7,290 |
| Colorado | 2 | .9 | 5,480 |
| New Mexico | 3 | 1.4 | 3,610 |
| Utah | 1 | .5 | 7,960 |
| Pacific | 10 | 4.7 | 6,740 |
| California | 10 | 4.7 | 6,740 |

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* Surgeries performed on employees and dependents of group health customers of Metropolitan Life Insurance Company

procedures, followed closely by the East North Central area of the country The Mountain area reported the fewest cataract operations with only 3 percent of the total, and states in the New England area accounted for 4 percent of the total hospital claims

## Regional Variations in Cataract Surgery Costs

According to Metropolitan Life statisticians, the average total cost for an in-hospital cataract operation in the United States was $5,410 (Table 2) The lowest total costs were recorded in the East South Central area with charges 18 percent lower than the average for the country Only two of the nine areas—the Pacific, i.e., California, and Middle Atlantic states—registered charges above the norm with total costs 25 and 15 percent higher, respectively

## State Variations in Costs

As seen in Table 1, total charges for an in-hospital cataract operation differed by as much as 193 percent between individual states The highest total charge (almost $8,000) was recorded for the one cataract removal performed in Utah; the lowest charge, $2,720, was reported in Michigan, also for one operation As the number of procedures performed increases, this disparity diminishes, but a sizable difference remains nonetheless Thus, among states in which at least five cataracts were removed, a 90 percent difference existed between the charges in Pennsylvania ($7,110) and those in Tennessee ($3,750) (Figure B) The Pennsylvania total charge was 31 percent above the national average and the Tennessee charge was the identical percentage *below* the norm The other states in which the average total charges exceeded the norm were California, New York, Louisiana, Virginia and Texas It seems noteworthy that the charges should differ by 46 percent between states in the Middle Atlantic area of the country The New Jersey charges were 10 percent below the average, whereas the New York costs were 14 percent above Missouri was the only other state in which a cataract removal cost more than 10 percent below the average

## Physician Charges

The average physician cost was $2,710 across the country, representing half of the total cataract surgery bill The charges differed by as much as 148 percent between those registered in New York ($4,050) and those reported in Tennessee ($1,630) The New York physician charge comprised two-thirds of the total bill and was the highest proportionate charge among the states in the study In addition, the doctors' charges in New York were almost 50 percent above the U.S. average The physician charges in California and Pennsylvania were more than $3,000, 28 and 22 percent above the norm, respectively

Physician charges were 20 percent or more above the U.S. average in California and Pennsylvania. These fees were in contrast to those reported in Virginia and Missouri, where the physician fees were 26 and 22 percent below the average.

On average, 50 percent of the total cost to health insurance for an in-hospital cataract removal was attributable to hospital charges (i.e., room and board and ancillary fees). By states, these percentages ranged from highs of 64 percent in Virginia and 57 percent each in Tennessee and Texas to lows of 34 percent in New York and 42 percent in New Jersey.

Actual hospital charges varied by as much as 86 percent between states — again this difference existed within the Middle Atlantic states. The hospital charges registered in Pennsylvania were 41 percent *above* the U.S. average of $2,700, whereas the costs in

## Table 2—Regional Variation in Average Charges for a Typical* In-Hospital Cataract Procedure† March 1, 1985–February 28, 1986

| Geographic Area | Average Costs ($) | | | | | Average Length of Stay | Percentage | |
|---|---|---|---|---|---|---|---|---|
| | Total Hospital & Physician | Hospital Charge | | | Physician Charge | | Hospital of Total | Ancillary of Hospital |
| | | Total | Room & Board | Ancillary | | | | |
| United States | 5,410 | 2,700 | 550 | 2,150 | 2,710 | 2.43 | 50 | 80 |
| New England | 4,840 | 2,380 | 410 | 1,970 | 2,460 | 1.38 | 49 | 83 |
| Middle Atlantic | 6,200 | 2,420 | 540 | 1,880 | 3,780 | 2.06 | 39 | 78 |
| New Jersey | 4,870 | 2,040 | 220 | 1,820 | 2,830 | 1.33 | 42 | 89 |
| New York | 6,160 | 2,110 | 500 | 1,610 | 4,050 | 2.08 | 34 | 76 |
| Pennsylvania | 7,110 | 3,800 | 880 | 2,920 | 3,310 | 2.40 | 53 | 77 |
| East North Central | 5,320 | 2,900 | 660 | 2,240 | 2,420 | 2.63 | 55 | 77 |
| Illinois | 5,180 | 2,830 | 760 | 2,070 | 2,350 | 2.65 | 55 | 73 |
| Ohio | 5,370 | 2,830 | 460 | 2,370 | 2,540 | 2.28 | 53 | 84 |
| West North Central | 4,590 | 2,650 | 450 | 2,200 | 1,940 | 2.41 | 58 | 83 |
| Missouri | 4,580 | 2,460 | 440 | 2,020 | 2,120 | 2.45 | 54 | 82 |
| South Atlantic | 5,060 | 2,860 | 600 | 2,260 | 2,200 | 2.96 | 57 | 79 |
| Virginia | 5,510 | 3,510 | 970 | 2,540 | 2,000 | 5.00 | 64 | 72 |
| East South Central | 4,450 | 2,400 | 400 | 2,000 | 2,050 | 2.22 | 54 | 83 |
| Kentucky | 5,200 | 2,830 | 560 | 2,270 | 2,370 | 2.73 | 54 | 80 |
| Tennessee | 3,750 | 2,120 | 290 | 1,830 | 1,630 | 1.75 | 57 | 86 |
| West South Central | 5,370 | 2,910 | 500 | 2,410 | 2,460 | 3.04 | 54 | 83 |
| Louisiana | 5,820 | 2,890 | 370 | 2,520 | 2,930 | 2.00 | 50 | 87 |
| Texas | 5,540 | 3,160 | 590 | 2,570 | 2,380 | 3.67 | 57 | 81 |
| Mountain | 5,290 | 2,690 | 530 | 2,160 | 2,600 | 2.43 | 51 | 80 |
| Pacific | 6,740 | 3,260 | 680 | 2,580 | 3,480 | 2.20 | 48 | 79 |
| California | 6,740 | 3,260 | 680 | 2,580 | 3,480 | 2.20 | 48 | 79 |

* Typical surgeries exclude outliers according to DRG guidelines.

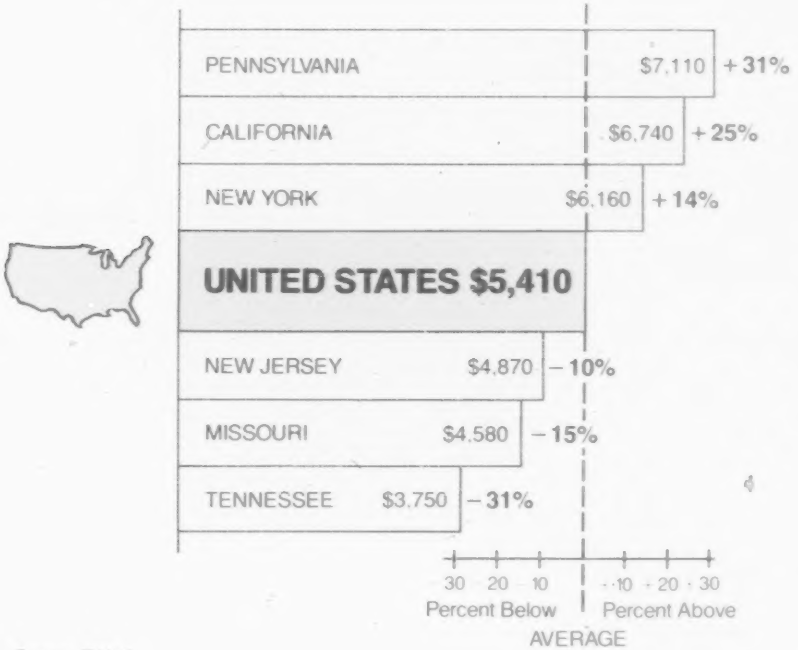
† Surgeries performed on employees and dependents of group health customers of Metropolitan Life Insurance Company.

Source: Claims data from Metropolitan Life Insurance Company merged and edited by Corporate Health Strategies, Inc.; analysis and computations by Health and Safety Education personnel, Metropolitan Life Insurance Company.

New Jersey, were 24 percent *below* the average. Hospital fees were 30 and 21 percent above average in Virginia and California, respectively. In contrast to these high fees, New York and Tennessee averaged hospital charges 22 d 21 percent *below*.

Ancillary charges (laboratory, X-rays, operating room charges, etc.) comprised 80 percent of the total hospital billings. Geographically, these charges typically ran three and one-half to five times the cost of room and board. However, in some states, the costs ranged from two and one-half to more than eight times greater than the room and board fees. By individual states, ancillary charges comprised 72 percent of the hospital bill in Virginia, yet these dollars constituted 89 percent of the total hospital bill in New Jersey. The highest ancillary charges, i.e., 20 percent greater than the U.S. average, were recorded in Pennsylvania, California and Texas. The lowest charge was found in New

## Figure B—States With Highest and Lowest Total Charges for an In-Hospital Cataract Extraction March 1, 1985–February 28, 1986



Source: Table 2

York ($1,610), 25 percent below the average and 45 percent lower than the Pennsylvania charge. Other states in which the fees were comparatively low (i.e., 15 percent below the average) were New Jersey and Tennessee.

The average length of stay was 2.43 days with modest variation evident between regions. Between state variation, however, was considerable, ranging from five days in Virginia to 1.33 days in New Jersey. As would be expected, the impact of the number of days of hospitalization is reflected in the room and board fees.

As described above, regional variation in charges for a cataract operation was fairly extensive for the cost categories examined. The reasons for these differences are not clear cut but are usually attributed to the experience, number and medical training of the opthalmologists in the area as well as cost-of-living difference and the socio-economic and demographic makeup of the region. As the technology continues to improve and the population ages and is healthier, requests for restoration of sight will continue to increase. With more cataract extractions and lens implantations being performed on an out-patient basis, monitoring the quality of, criterion for and charges associated with the procedures should become routine and less costly. Clearly action must be taken to correct any inequities that have surfaced between charges for in-patient and ambulatory cataract operations. Increased surveillance of the charges associated with this procedure in both settings is obviously in order. Only when such data are made available in a routine fashion can be the public make informed choices as to how best to use their health care resources.

Stark WJ, Leske MC, Worthen DM, Murray GC. "Trends in cataract surgery and intraocular lenses in the United States." *Am J Ophthalmol* 99:304-310, 1985.
Vaughan D, Asbury T. *General Ophthalmology, Ninth Edition*, Pages 126-134, "Chapter 11, Lens," Los Altos, Calif.: Lange Medical Publications, 1980 and *Eleventh Edition*, Pages 143-150, "Chapter 12, Lens," 1986.
Popper E. "Abuses surrounding cataract industry call for public policy reforms." *Business and Health* 3(7):58-59, 1986.
Newton, MJ. "Advances in cataract surgery and the management of aphakia." *Bull N Y Acad Med* 60(4):441-445, 1984.
Nadler DJ, Schwartz B. "Cataract surgery in the United States, 1968-1976. A descriptive epidemiologic study." *Ophthalmology* 87(1):10-18, 1980.
Taylor, JM. "Medicare payments and changes in the rate of cataract extraction." *Am Acad of Ophthalmol* 88(1):41A-46A, 1981.
Haug JN, Palmer RE (eds.) *Socio-Economic Factbook for Surgery 1987*.
Chicago, Ill.: American College of Surgeons, 1987.
National Center for Health Statistics.
*Detailed Diagnoses and Procedures for Patients Discharged from Short Stay Hospitals, United States, 1985, 1984, 1983, 1982, 1981, and 1980*. Vital and Health Statistics Series 13.
Washington, D.C.: U.S. Gov't. Printing Office.
Nathanson M. "Cataracts proving a thorny problem under prospective payment system."
*Modern Health Care* 14(7):130-132, 1984.
Bernth-Petersen P. "Outcome of cataract surgery IV: socio-economic impact." *Acta Ophthalmol* 60(2):234-244, 1982.

# Canada's Changing Population

The population of Canada was 25.354.064 on June 1, 1986, according to recently released figures by Statistics Canada. This represents an increase of 1.010.883 or 4.2 percent since the last official count five years earlier. However, the percentage change during the 1981–1986 period was the lowest five-year growth rate in the past 25 years. During this interval, the relative increase in the number of Canadians was as large as 9.7 percent (1961–66). By comparison, between 1976 and 1981 the

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## Table 1 — Canadian Population by Province 1976 to 1986, with Projection to 2001 (as of June 1)

| | Census Count | | | Percent Change | | Projection |
|---|---|---|---|---|---|---|
| **Province** | **1976** | **1981** | **1986** | **1976-81** | **1981-86** | **2001** |
| Canada | 22.992.605 | 24,343,181 | 25.354.064 | 5.9 | 4.2 | **27,816,000** |
| Newfoundland | 557,725 | 567,681 | 568.349 | 1.8 | .1 | **609,000** |
| Prince Edward Island | 118,230 | 122,506 | 126,646 | 3.6 | 3.4 | **126,000** |
| Nova Scotia | 828,570 | 847,442 | 873,199 | 2.3 | 3.0 | **887,000** |
| New Brunswick | 677,250 | 696,403 | 710,422 | 2.8 | 2.0 | **730,000** |
| Quebec | 6,234,445 | 6,438,403 | 6,540,276 | 3.3 | 1.6 | **6,741,000** |
| Ontario | 8,264,465 | 8,625,107 | 9,113,515 | 4.4 | 5.7 | **9,738,000** |
| Manitoba | 1,021,505 | 1,026,241 | 1,071,232 | .5 | 4.4 | **1,097,000** |
| Saskatchewan | 921,325 | 968,313 | 1,010,198 | 5.1 | 4.3 | **1,120,000** |
| Alberta | 1,838,035 | 2,237,724 | 2,375,278 | 21.7 | 6.1 | **3,022,000** |
| British Columbia | 2,466,610 | 2,744,467 | 2,889,207 | 11.3 | 5.3 | **3,668,000** |
| Yukon and Northwest Territories | 64,445 | 68,894 | 75,742 | 6.9 | 9.9 | **77,000** |

Note: The figures for 2001 have been independently rounded; hence, the sum of parts will not equal the total.
Source: Various reports by Statistics Canada

population of Canada grew by 5.9 percent, or by 1,350,000. The continued slowdown in the rate of growth is attributed to lower immigration levels and declining birth rates. Moreover, although there may be some fluctuations, this trend is likely to continue. Table 1 presents projections by province for 2001 as well as the census results during the past decade.

Although each province gained population between 1981 and 1986, there were significant geographic variations in the rates of growth (see accompanying figure). The number of persons residing in Alberta rose by 6.1 percent — the largest relative increase of any province; nonetheless, this was a marked reduction from the percentage gain in the previous five-year period — 21.7 percent. Alberta's population of 2.3 million accounts for nearly 10 percent of all Canadians.

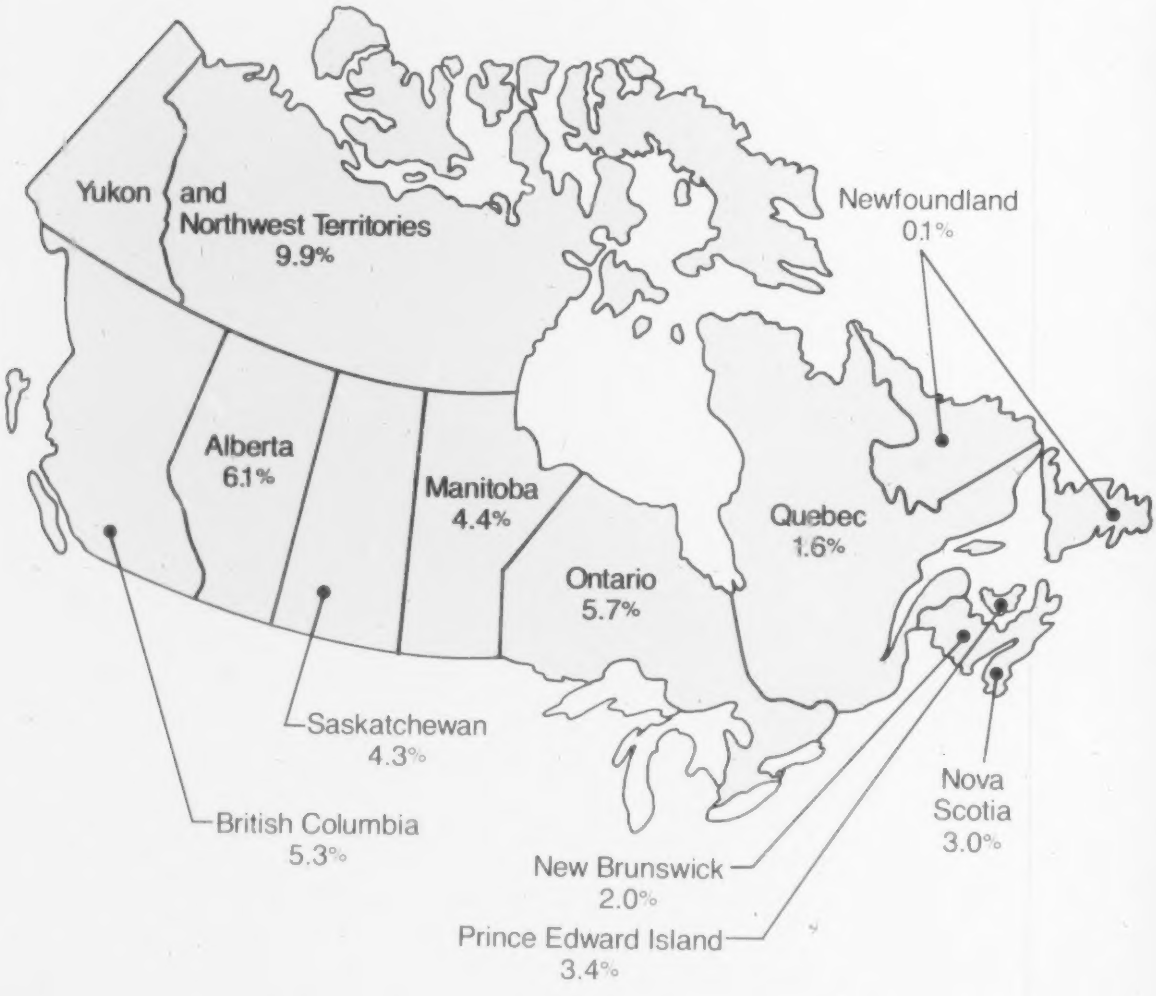
In Ontario — the most populous Canadian province — the increase between the two latest census figures was 5.7 percent, with the population exceeding 9.1 million in 1986. By comparison with the other provinces during this period, Ontario was the only area to have consistently gained inhabitants by net in-migration. The number of inhabitants in Ontario represent almost 36 percent of the population of Canada.

Numerically, Quebec is the second largest province in Canada, containing 26 percent of the nation's residents. Here, too, the growth rate has diminished considerably. In June 1986, there were more than 6.5 million people living in Quebec — an increase in the past five years of just 1.6 percent, or half the relative rise that occurred in the previous five-year period.

In British Columbia, the population gain between 1981 and 1986 was 5.3 percent and it represented the third largest relative provincial increase. Currently, over 11 percent of Canada's inhabitants reside within its boundaries. But once again, the recent percentage gain was a sharp reduction from the earlier increase. On the other hand, in Manitoba, the population increase between the 1981 and 1986 censuses was 4.4 percent — up sharply from the relative change between 1976 and 1981.

The age distribution of Canada's population varies considerably by province. According to estimates for June 1986 (census results by age are not yet available), there were 6.6 million persons under age 18 in Canada — 26 percent of the total population. Young persons comprised 32 percent of Newfoundland's residents, whereas Quebec's and British Columbia's proportion amounted to just 25 percent of the total. There were 11.4 million

## Figure — Percentage Change in Population, by Province, Canada, 1981–86


Yukon and Northwest Territories
9.9%
Newfoundland
0.1%
Alberta
6.1%
Manitoba
4.4%
Quebec
1.6%
Ontario
5.7%
Saskatchewan
4.3%
British Columbia
5.3%
Nova Scotia
3.0%
New Brunswick
2.0%
Prince Edward Island
3.4%

Canadians aged 18-44, yet only 41 percent of Saskatchewan's population was at these ages, while in Alberta the relative number was 47 percent.

Because Alberta contained a relatively large number of younger persons, it is not surprising that it has the smallest proportion of persons aged 65 and over—in June 1986, a mere 8.1 percent of its population. A similar situation occurred in Newfoundland; as a result, only 8.7 percent of its population was aged 65 or older. Around 12.5 percent of the population of Manitoba, Prince Edward Island and Saskatchewan was 65 years of age or over. Nationally, senior citizens made up 10.6 percent of Canada's population.

## Table 2—Population Estimates by Age and Sex Ratio Canada, by Province, June 1, 1986

| | Percent Distribution by Age | | | | Men per 100 Women | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Province | Under 18 | 18–44 | 45–64 | 65 and Over | All Ages | Under 18 | 18–44 | 45–64 | 65 and Over |
| Canada | 25.8 | 44.4 | 19.2 | 10.6 | **98** | 105 | 101 | 97 | 73 |
| Newfoundland | 31.8 | 44.0 | 15.5 | 8.7 | **101** | 106 | 99 | 103 | 85 |
| Prince Edward Island | 28.7 | 41.8 | 17.0 | 12.5 | **99** | 106 | 102 | 98 | 78 |
| Nova Scotia | 26.4 | 43.9 | 18.0 | 11.7 | **98** | 105 | 101 | 96 | 74 |
| New Brunswick | 27.9 | 43.8 | 17.4 | 10.9 | **98** | 105 | 101 | 96 | 76 |
| Quebec | 24.7 | 45.7 | 19.7 | 9.9 | **97** | 106 | 101 | 94 | 68 |
| Ontario | 25.0 | 43.8 | 20.2 | 11.0 | **97** | 105 | 99 | 97 | 71 |
| Manitoba | 26.8 | 42.3 | 18.3 | 12.6 | **97** | 105 | 101 | 95 | 75 |
| Saskatchewan | 29.1 | 40.8 | 17.6 | 12.5 | **100** | 105 | 103 | 99 | 82 |
| Alberta | 28.2 | 47.3 | 16.4 | 8.1 | **103** | 105 | 106 | 102 | 79 |
| British Columbia | 24.9 | 43.2 | 19.7 | 12.2 | **98** | 105 | 100 | 100 | 76 |
| Yukon and Northwest Territories | 36.5 | 48.5 | 12.3 | 2.7 | **109** | 105 | 109 | 128 | 100 |

Source: Statistics Canada, Postcensal Annual Estimates of Population by Marital Status, Age, Sex and Components of Growth for Canada, Provinces and Territories, June 1, 1986, Catalogue 91-210, March 1987.

Nationally, seniors [illegible]
[illegible]
of Canada's population

This was the fastest growing segment of the population, with the number of such persons increasing from 2.4 million to 2.7 million, or by 15 percent.

Nearly one fifth of Canada's population was aged 45-64. The proportion of the population at these ages was slightly above the national average in Ontario, Quebec and British Columbia, but was notably below in Newfoundland and Alberta. The percentage distribution of the population of Canada by province is provided in Table 2.

In June 1986 there were
slightly more women
than men in Canada

## Variations by Sex Distribution

In June 1986 there were slightly more women than men in Canada. The right-hand side of Table 2 shows the sex ratio by broad age groups for the large geographic divisions of the country. For all of Canada, as can be seen, there were 98 men for every 100 women. Only Alberta and Newfoundland had more men than women. Analysis by age reveals that the sex ratio diminished with advance in age. At ages under 18 there were 105 men for every 100 women—a ratio that was virtually the same in every province. In the next age bracket—ages 18 to 44—only Newfoundland and Ontario had fewer men than women. On the other hand, Alberta had 106 men for every 100 women. The sex ratios for the remaining provinces indicate that men just slightly outnumbered women. By ages 45 to 64 Canada had more women than men. Nationally, the ratio was 97 men for every 100 women. Also of note was the increasing disparities in the sex ratios by province. In contrast to the countrywide picture, Newfoundland and Alberta had more men than women, while there were about equal numbers of each sex in British Columbia. Quebec had the fewest number of men relative to the number of women—the ratio was only 94 per 100. In addition, Quebec also had the lowest ratio of men to women at ages 65 and over—namely 68 per 100. In Newfoundland and Saskatchewan, the ratio was 85 per 100 and 82 per 100, respectively. Nationally, the sex ratio was 73 men per 100 women.

[illegible]

## Growth in Large Metropolitan Areas

In comparison with the increase for the entire country, Canada's large metropolitan areas experienced rapid population growth

# Table 3—Population Change in Census Metropolitan Areas, Canada, 1976 to 1986 (as of June 1)

| | Numbers in Thousands, as of June 1 | | | | Percent Change | |
|---|---|---|---|---|---|---|
| | Old Basis* | | New Basis† | | | |
| | 1976 | 1981 | 1981 | 1986 | 1976 – 81 | 1981 – 86 |
| Total: 25 CMAs | — | — | 14,313 | 15,154 | NA | 5.9 |
| Newfoundland | | | | | | |
| St. John's | 145 | 155 | 155 | 162 | 6.5 | 4.6 |
| Nova Scotia | | | | | | |
| Halifax | 268 | 278 | 278 | 296 | 3.6 | 6.6 |
| New Brunswick | | | | | | |
| Saint John | 113 | 114 | 121 | 121 | 1.0 | .2 |
| Quebec | | | | | | |
| Chicoutimi-Jonquiere | 129 | 135 | 158 | 158 | 5.1 | .2 |
| Montreal | 2,803 | 2,828 | 2,862 | 2,921 | .9 | 2.1 |
| Quebec | 542 | 576 | 584 | 603 | 6.3 | 3.3 |
| Sherbrooke | NA | NA | 125 | 130 | NA | 3.8 |
| Trois-Rivieres | 106 | 111 | 125 | 129 | 5.1 | 2.8 |
| Ontario | | | | | | |
| Hamilton | 529 | 542 | 542 | 557 | 2.4 | 2.8 |
| Kitchener | 272 | 288 | 288 | 311 | 5.8 | 8.1 |
| London | 270 | 284 | 327 | 342 | 4.9 | 4.7 |
| Oshawa | 135 | 154 | 186 | 204 | 14.1 | 9.2 |
| Ottawa-Hull | 693 | 718 | 744 | 819 | 3.6 | 10.1 |
| St. Catharines-Niagara | 302 | 304 | 343 | 343 | .8 | .2 |
| Sudbury | 157 | 150 | 156 | 149 | -4.5 | -4.6 |
| Thunder Bay | 119 | 121 | 122 | 122 | 1.8 | .2 |
| Toronto | 2,803 | 2,999 | 3,130 | 3,427 | 7.0 | 9.5 |
| Windsor | 248 | 246 | 251 | 254 | -.6 | 1.2 |
| Manitoba | | | | | | |
| Winnipeg | 578 | 585 | 592 | 625 | 1.2 | 5.6 |
| Saskatchewan | | | | | | |
| Regina | 151 | 164 | 173 | 187 | 8.7 | 7.7 |
| Saskatoon | 134 | 154 | 175 | 201 | 15.3 | 14.6 |
| Alberta | | | | | | |
| Calgary | 471 | 593 | 626 | 671 | 25.7 | 7.2 |
| Edmonton | 556 | 657 | 741 | 785 | 18.1 | 6.0 |
| British Columbia | | | | | | |
| Vancouver | 1,166 | 1,268 | 1,268 | 1,381 | 8.7 | 8.9 |
| Victoria | 218 | 233 | 241 | 256 | 7.0 | 5.8 |

* Based on 1981 area †Based on 1986 area

Note: Percentages are based on unrounded figures

Source of basic data Census reports from Statistics Canada between 1981 and 1986. As a group, the number of residents of the 25 large Census Metropolitan Areas (CMAs)* rose by 5.9 percent. The largest relative increase—14.6 percent—occurred in the Saskatoon area. Next in rank order was the gain in the Ottawa-Hull CMA (10.1 percent), closely followed by the rise in the Toronto CMA (9.5 percent). Toronto is Canada's most populous CMA, with over 3.4 million residents in 1986. The population increase in the Montreal CMA—the second largest Canadian metropolitan area—was only 2.1 percent. In Vancouver, the only other CMA with more than one million residents, the growth rate between 1981 and 1986 was 8.9 percent. With the exception of the Oshawa and Kitchener CMAs (both in Ontario province), no other regional area experienced an 8 percent or higher percentage gain. By contrast, the Sudbury CMA (also in Ontario province) was the only major center to record a decline between the two censuses. In four other CMAs, the relative gain in the period under review was less than 1 percent. Table 3 shows the specifics of the population changes for the 25 CMAs between 1981 and 1986. For purposes of comparison with data for 1976, the middle two columns of the table show the CMA's population on June 1981 under the new (1986) and old (1981) boundary definitions.□

Toronto is Canada's most populous CMA, with over 3.4 million residents in 1986. The population increase in the Montreal CMA—the second largest Canadian metropolitan area—was only 2.1 percent.

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*A Census Metropolitan Area refers to the main labor market area of an urban area of at least 100,000 population.

SB
STATISTICAL BULLETIN

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# Historical Perspectives

## 50 YEARS AGO

### IN THE 1937 STATISTICAL BULLETIN

**More people were employed in U.S. industries in 1936** than at any time since the depression years of 1932 and 1933. Unfortunately, this improvement in economic conditions was accompanied by sizable increases in occupational mortality paralleling the expansion of employment in the construction, manufacturing, mining and quarrying industries. Occupational fatalities numbering 18,000 were reported in the U.S. population of 1936—a 9 percent increase over 1935. Among adult white men insured by Metropolitan Life, the 1936 fatality rate of 25.6 per 100,000 represented an increase of 16.9 percent over the 1935 rate. When occupational fatalities were broken down by type, only automobile accidents—exclusive of automobile collisions with railway trains, engines or streetcars—registered a decline (7.5 percent) between 1935 and 1936. Increases in accidental mortality were registered from traumatism by falls, by machines and in mines and quarries, which, together with automobile accidents, were the four most frequent causes of fatal occupational injury. (Currently on-the-job deaths number about 12,000 annually resulting in a mortality rate of about 5.0 per 100,000—ed.) (Page 1, June)

**A study of death rates by marital status** based on the 1929-31 mortality experience, by sex and age, for residents of New York State, exclusive of New York City, confirmed evidence taken from Canadian statistics that married men consistently had a substantially more favorable mortality experience than unmarried men. In fact, the New York State study showed that from ages 30 to 45 the mortality of married men was less than half that of single men. Among women the advantage of being married was less pronounced, with the death rate of married women at ages 30 to 65 only 10 percent better than that of single women. For wives aged 20-24, the hazards of childbirth raised the mortality of the married somewhat above that of the single. Although men generally have higher mortality than women, *married* men between ages 20 and 31 experienced lower mortality than married women of those ages because of the dangers of childbirth. When mortality among widowed and married people was compared, death rates among the widowed were higher at every age. Widowers had substantially higher mortality rates than widows. Metropolitan Life statisticians speculated about the future when pension plans would help relieve the widow of much of the stress resulting from loss of the family breadwinner. (Page 7, February)

**Interpreting life insurance studies.** Metropolitan Life statisticians concluded that body girth and length of life varied inversely with each other. They observed that by controlling overweight and thus reducing death from the major diseases of middle and later life, the average length of life would increase. An insurance study showed that obese men—35 percent or more above average weight—had mortality 1½ times that of average weight men. This held true despite the fact that this study group of policyholders included only overweight men selected by medical examination as free from any other serious impairment. The greater the degree of overweight, the greater was the mortality rate. The most favorable body weight based on mortality at the various adult ages was: up to age 30, slight overweight; ages 30 to 39, average weight; ages 40 to 49, slight underweight; ages 50 and over, an appreciable degree of underweight. Of the several body types of overweights the "pot-bellied" variety was the worst, whereas the solidly built, large-boned overweight individual was superior to the flabbier type. Certain serious physical defects were generally more common among overweights than those of slighter build. High blood pressure, for example, was 2½ times as common among overweights as among persons of average weight. Other hazards of overweight included most of the major diseases of adult life, especially the cardiovascular-renal diseases and diabetes. The tendency to overweight was attributed in part to less laborious activities—machinery taking the place of human labor—and to spectator sports. The statisticians cautioned against hazardous methods of weight reduction, some reducing diets and reducing drugs which could do more harm than good. (Page 2, May)

**An analysis of the chances of eventually dying from accidents among the 1935 U.S. population** showed considerable variations by age and sex. For a white male, the likelihood of accidental death was 78 in 1,000 at birth, reached a maximum at age 5, then declined, reaching a minimum of 42 per 1,000 at age 70. The experience was very different for females. Their chances of accidental death were greatest at extreme old age. Analysis by type of accidental death, i.e., automobile, falls, burns, and drownings, revealed that a male from birth to age 55 years had a greater prospect of being killed in an auto accident than in any other type of accident. For females, throughout life, the probability of dying from falls exceeded that of any other accidental injury. Even at birth this probability amounted to more than half the total likelihood of dying from all forms of accidents combined. When compared by sex, the chances of dying from falls were about twice as great for a girl as for a boy. Death by drowning was a predominantly male phenomenon, whereas death by burns was more common among women. (Page 6, November)

## Coming in Future Issues

- Stomach Cancer: Mortality Variations by State
- Costs of Medical Care
- Mortality Differentials by Race and Sex
- Multiple Births